H.R.I.O.

HORTICULTURAL RESEARCH INSTITUTE OF ONTARIO

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MUCK VEGETABLE CULTIVAR TRIALS and RESEARCH REPORTS

1989

M.R. McDonald

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Ministry of Agriculture and Food
ONTARIO

Muck Research Station
Kettleby, Ontario

RESEARCH AND CULTIVAR TRIAL REPORT FOR 1989

MUCK RESEARCH STATION, HOLLAND MARSH,

R.R.# 1 KETTLEBY, ONTARIO, LOG 1JO

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INTRODUCTION AND ACKNOWLEDEGMENTS

Horticultural research and services programs for the fruit and vegetable industry of Ontario are the responsibility of the **Horticultural Research Institute of Ontario**, Ontario Ministry of Agriculture and Food. First established in 1906, this institute carries on its research efforts in four units, the Vineland Station; the Horticultural Products Laboratory, also situated at Vineland Station; the Horticultural Experiment Station at Simcoe and the Muck Research Station in the Holland Marsh.

The Muck Research Station, established in 1948, is responsible for conducting and coordinating all research projects directed towards solving problems in the production of vegetables grown in organic soils. The **Ontario Muck Crops Research and Services Subcommittees (OMCRSC)** representing researchers, industry, growers and crop advisors, makes recommendations for research on an annual basis.

In 1989, Muck Research Station staff conducted and/or cooperated on research projects with researchers of the Departments of Environmental Biology and Horticultural Science at the University of Guelph; researchers from Agriculture Canada research stations at London and Vineland Station; the Ontario Pesticide Residue Testing Laboratory; researchers of the Horticultural Products Laboratory (H.R.I.O.). at Vineland Station, research departments of the Crop Protection Chemical Industry and Growers.

The station also provides Advisory Services to growers and the general public in regard to production and marketing of horticultural crops.

The Pest Management Program for growers in the Bradford area is managed by the Plant Industry Branch in cooperation with the Bradford and District Vegetable Growers' Association. Intensive pest monitoring is available to vegetable producers on a fee for service basis.

This report highlights the research projects which were conducted in 1989. The results published in this report should be treated as a progress report. Some of the chemicals used in the trials are not registered for use on the crops they were applied to. Additional trials may be necessary before any firm conclusions and recommendations can be given.

I would like to take this opportunity to express my sincere appreciation to the staff for their efforts in conducting these trials and producing this report. My thanks also to all the cooperating researchers and technicians for their interest in muck crops.

Mary Ruth McDonald
Research Scientist, Muck Crops

SEED SOURCES - 1989

We wish to express our sincere thanks to all those who provided us with seed for trials.

A&C	Abbott & Cobb Inc., Box 307, Feasterville, Pennsylvania, U.S.A. 19047.
A.Ch.	Alf. Christianson Seed Co., Box 98, Mount Vernon, Washington, U.S.A. 98273.
Agri	Agri-Saaten Gmbh, Postfach 1151, Stemensstrabe 43, 2084 Rellingen.
Aris	Aristogenes Inc., 23723 Fargo Road, Idaho, U.S.A. 83660.
Asg	Asgrow Seed Co., Box 610, Bradford, Ontario, Canada L3Z 2B2.
BEJO	BEJO ZADEN, Postbus 50, 1749 ZH Warmenhuizen, Holland
BO	Brinker-Orsetti Seed Co., 771-A Freedom Blvd, Watsonville, California, U.S.A. 95076.
Cro	Crookham Company, Box 520, Caldwell, Idaho, U.S.A. 83606.
CS	Campbell Soup Co., Box 280, Chatham, Ontario, Canada N7M 5K4.
E.J.	Erie James Ltd., Box 457, Leamington, Ontario, Canada N8H 3W5.
FM	Ferry-Morse Seed Co., Box 431, Orchard Park, New York, U.S.A. 14127.
HM	Harris Moran Seeds of Canada, R.R. # 1 Kettleby, Ontario, Canada LOG 1JO.
JHK	J.H. Klitgord, Box 87, R.D. # 2 Mayville, New York, U.S.A. 14757.
Jung	J.W. Jung Seed Co., Randolph, Wisconsin, U.S.A. 53956.
NK	Northrup King & Co., Box 1827, Gilroy, California, U.S.A. 95021.

.../ continued

NUN	Nunheim's Zaden B.V., Box 4005, 6080 AA, Haelen, Holland.
NZ	Nickerson-Zwaan B.V., Box 1787, Gilroy, California, U.S.A. 95021.
OE	J.E. Ohlsen Enke, Box 15, Aalokke Alle 5-7, DK-5100, ODENSE C, Denmark.
PES	Peter-Edward Seed Co., 302 South Center St., Eustris, Florida, U.S.A. 32726.
PETO	Petoseed Co., Box 4206, Saticoy, California, U.S.A. 93004.
RS	Royal Sluis Inc., 1293 Harkins Rd., Salinas, California, U.S.A. 93901.
Sak	Sakata Seed America Inc., 18095 Serene Dr., Morgan Hill, California, U.S.A. 95037.
Sham	Shamrock Seed Co., Box 4443, Salinas, California, U.S.A. 93912.
Sieg	Siegers Seed Co., 8265 Felch Street Zeeland, Michigan, U.S.A. 49464.
Sto	Stokes Seeds Ltd., 39 James St., Box 10, St. Catharines, Ontario, Canada L2R 6R6.
Sun	Sun Seeds, 8850 59th Avenue N.E. Brooks, Oregon, U.S.A. 97305.
Swy	Seedway Inc., Hall, New York, U.S.A 14463.
Tak	American Takii Inc., 301 Natividad Road, Salinas, California, U.S.A. 93906.
Toz	A.L. Tozer Ltd., Cobham. Surrey, England KT11-3EH.
Twi	O.S. Twilley Seeds Co., Box 65, Trevose, Pennsylvania, U.S.A. 19047 .
UW	University of Wisconsin, Dept. of Horticulture, 1575 Linden Drive, Madison, Wisconsin, U.S.A. 53706.
VDH	Vanderhave, Box 1, 4410AA, Rilland, Holland.

STAFF - 1988-89

MUCK RESEARCH STATION - H.R.I.O.

Mary Ruth McDonald, P.Ag.,	**Officer in Charge Research Scientist, Muck Crops**
Matthew Valk. P. Ag.,	Officer In Charge, (Retired March 31, 1989)
Holly Burbidge, Dip. Hort.	Technician - Production and Research
Edo N. Knibbe, Dip. Agri.	Technician (Retired May 30, 1989)
Patricia Morton, B.Sc.	Agricultural Worker
Elizabeth Eves	Labourer
Tim Haagsma	Labourer
Armanda Pinho	Experience '89 Student
Rachelle Phaneuf	Experience '89 Student
Patricia Flinn	Office Administration Group

COOPERATING RESEARCH STAFF

G. Boland	Environmental Biology, Univ. of Guelph
Ray Cerkauskus	Agriculture Canada, Vineland Station
Andy A. Reyes	Agriculture Canada, Vineland Station
Gwen Ritcey	Environmental Biology, Univ. of Guelph
Steve Kells	Student - " " Univ. of Guelph
Vern Shattuck	Horticulture Department. Univ. of Guelph
Richard Smith	H.P.L. - H.R.I.O., Vineland Station
Vince Souza Machado	Horticultural Science, Univ. of Guelph
A.B. "Steve" Stevenson	Agriculture Canada, Vineland Station
Ed. Barsz	Agriculture Canada, Vineland Station

COOPERATING RESEARCH STAFF - INDUSTRY

Todd Cutting	Asgrow
Steve Danys	United Agriproducts, London
Heather Kenney	Ciba Geigy, Cambridge
Ian McDonald	Hoechst, Cambridge
Allan McFadden	Rohm and Haas
Nan Schellenberger	Harris Moran
Brad Smith	Chipman, Stoney Creek

PLANT INDUSTRY BRANCH

PEST MANAGEMENT PROGRAM

Jim Chaput, M.Sc.,	**Pest Management Advisor**
Bernt Solymar	Pest Management Advisor (Contract Nov. 88-March 89)
Tom Clarke	Pest Management Advisor (Contract, April 89-Sept. 89)
James Bennett	Scout
Kevin Brown	Scout - Port Colborne
Elizabeth Eves	Scout
Wendy Jahn	Scout
Alanna Maier	Scout
Diane McDonald	Scout
Heather O'Reilly	Scout
Keith Richards	Scout
Dagmar Woll	Scout
Randy Wurzburger	Scout
Shelia Visser	Accountant
Mary Jane Trim	Record Keeper

EXTENSION

Rhonda Nauta	Assistant Hort. Crops Advisor

SUNSHINE HOURS

Month	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
January		75	85	58	69	88	108	82	53	68	52	71	67
February		88	105	123	132	110	81	102	102	66	60	85	145
March		114	177	141	126	128	102	130	115	135	141	124	174
April	185	221	206	191	127	155	158	219	117	152	171	162	194
May	256	197	341	230	208	233	221	199	186	164	235	222	240
June	272	261	282	281	280	192	245	170	296	335	240	258	253
July	292	250	309	303	263	246	265	303	295	268	271	252	295
August	227	268	255	253	189	206	201	225	226	218	207	217	256
September	160	192	104	179	204	161	119	138	195	168	181	112	145
October	127	114	162	144	79	108	106	126	141	105	145	129	114
November	73	88	47	107	68	73	116	61	49	77	37	94	103
December	58	83	51	58	56	74	33	35	50	39	62	38	67
Total Hours		**1951**	**2124**	**2068**	**1801**	**1774**	**1755**	**1790**	**1825**	**1795**	**1802**	**1764**	**2053**

SUNSHINE HOURS

Month	1988	1989	LTA
January	93	93	76
February	94	108	100
March	151	125	135
April	137	169	170
May	236	192	222
June	304	196	235
July	280	340	281
Aug	243	215	227
Sept	185	185	162
Oct.	96	142	122
Nov	48	73	74
Dec	86	82	56
Total Hours	1953	1920	1860

LTA - Long Term Average for Muck Research Station, Kettleby, 14 Years - (1976-1989)

PRECIPITATION

Month	1975		1976		1977		1978		1979		1980		1981	
	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm
January	24	31	14	43	0	37	30	44	9	57	27	15	0	33
February	29	55	24	17	11	4	0	12	9	12	4	16	37	21
March	23	28	73	16	42	16	32	8	44	14	44	24	24	13
April	21	30	72	10	20	0	74	5	67	10	110	0	36	0
May	77	0	82	5	50	0	66	0	82	0	23	0	80	0
June	55	0	66	0	67	0	53	0	47	0	88	0	71	0
July	67	0	185	0	118	0	16	0	49	0	129	0	88	0
August	74	0	53	0	155	0	102	0	100	0	48	0	84	0
September	69	0	102	0	114	0	123	0	62	0	84	0	89	0
October	38	0	79	0	86	0	53	0	116	2	71	0	75	17
November	44	0	14	10	73	10	41	7	85	2	20	9	67	6
December	25	41	13	34	11	15	21	32	57	19	42	35	5	43
Annual	546	185	777	135	747	82	611	108	727	116	690	99	656	133
Total Precip.	731		912		829		719		843		789		789	

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989).

PRECIPITATION

Month	1982		1983		1984		1985		1986		1987		1988	
	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm	Rain mm	Snow cm
January	5	54	29	7	0	56	16	29	0	35	0	37	18	5
February	0	35	28	6	24	53	63	37	16	33	6	5	3	46
March	30	31	34	12	33	18	47	3	34	19	37	16	21	1
April	22	11	75	4	46	0	42	8	37	3	48	3	57	0
May	42	0	88	0	104	0	77	0	88	0	60	0	43	0
June	141	0	29	0	61	0	43	0	120	0	112	0	38	0
July	80	0	65	0	36	0	72	0	95	0	189	0	48	0
August	71	0	90	0	81	0	158	0	166	0	81	0	91	0
September	73	0	46	0	98	0	59	0	209	0	69	0	84	0
October	47	0	75	0	39	0	73	0	47	0	66	0	79	2
November	101	7	50	24	64	0	75	28	14	17	41	43	69	0
December	58	22	11	41	22	19	0	17	25	35	23	11	24	13
Annual	670	160	620	94	608	146	725	122	851	142	732	115	575	67
Total Precip.	830		714		754		847		993		847		642	

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989).

PRECIPITATION

Month	1989		LTA	
	Rain mm	Snow cm	Rain mm	Snow cm
January	15	12	12	33
February	0	19	17	25
March	9	26	35	16
April	37	20	51	6
May	102	0	71	0
June	93	0	72	0
July	54	0	86	0
August	100	0	97	0
September	102	0	92	0
October	61	0	67	0
November	68	5	55	11
December	2	18	23	26
Annual	**643**	**100**	**678**	**117**
Total Precip.	**743**		**795**	

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO 15 Years (1975-1989).

MEAN TEMPERATURE (^{O}C)

Month	1975		1976		1977		1978		1979		1980		1981	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
January	- 0.2	- 8.3	- 5.4	-15.8	- 9.5	-18.0	6.4	-14.6	- 4.8	-10.9	- 2.1	- 9.2	- 7.0	-17.4
February	- 1.5	- 8.3	1.0	- 6.9	- 3.1	- 9.4	6.2	-17.5	- 6.3	-16.0	- 4.6	-12.4	0.9	- 6.6
March	0.9	- 6.3	4.3	- 3.8	6.6	- 2.4	0.2	-10.9	- 6.4	2.5	1.9	- 6.3	3.3	- 5.1
April	6.1	- 2.4	12.9	2.3	13.4	1.7	8.3	- 1.0	9.9	0.9	11.3	2.0	11.6	2.1
May	22.1	8.9	16.0	5.6	21.6	5.8	18.5	6.9	17.9	7.2	19.9	6.9	17.0	4.4
June	24.3	12.2	25.7	12.5	22.2	8.9	23.3	10.2	23.7	11.1	20.3	8.7	23.7	11.5
July	27.6	13.2	24.2	13.6	26.0	14.5	27.0	13.2	27.0	16.0	25.8	13.8	26.0	14.1
August	25.3	12.4	24.6	11.9	23.9	12.0	26.4	12.8	24.1	12.7	26.1	14.7	24.5	13.0
September	18.1	7.3	19.7	8.0	18.4	10.9	19.7	8.9	21.6	8.5	19.5	8.6	18.4	9.8
October	14.9	4.6	10.0	1.5	12.2	2.7	12.6	3.6	12.2	5.1	10.3	3.1	10.6	1.7
November	10.5	1.7	3.2	- 4.2	6.6	0.4	6.3	- 1.9	7.7	1.2	4.4	- 1.8	6.8	- 1.5
December	1.7	-10.3	- 4.2	-13.6	- 2.3	- 9.1	0.2	- 6.6	- 1.3	- 4.8	- 3.3	-12.3	- 1.0	- 7.0
Mean	12.5	2.1	11.0	0.9	11.4	1.5	12.9	0.3	10.5	2.8	10.8	1.3	11.2	1.6

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989).

MEAN TEMPERATURE (^{O}C)

Month	1982		1983		1984		1985		1986		1987	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
January	- 6.2	-15.8	- 2.0	- 7.9	- 6.4	-14.7	- 5.7	-13.3	- 3.2	-10.6	- 2.1	- 8.8
February	- 3.9	-12.6	- 0.3	- 7.4	1.6	- 5.9	- 3.1	-10.8	- 4.1	-11.7	- 1.8	-12.7
March	- 1.9	- 6.6	3.9	- 4.1	- 0.8	-10.4	3.9	- 4.7	5.1	- 4.1	5.8	- 4.2
April	9.9	- 1.1	9.7	0.3	12.5	1.5	13.2	2.4	13.3	1.7	14.4	2.8
May	21.1	8.5	15.3	5.0	15.8	4.4	19.2	6.4	20.3	8.4	20.6	7.2
June	20.6	10.8	25.2	10.0	25.8	11.7	21.1	9.1	22.5	9.8	25.1	12.0
July	26.8	14.4	28.6	14.7	26.7	13.5	25.5	12.9	25.7	14.8	27.6	15.7
August	23.0	11.4	26.0	14.3	27.6	15.2	23.8	12.1	23.3	11.4	24.5	13.1
September	20.1	9.1	22.5	9.2	18.8	7.9	21.9	10.1	19.1	9.3	20.4	10.0
October	15.2	3.6	13.7	3.5	15.6	5.5	14.1	4.4	13.1	4.3	11.5	2.0
November	6.9	0.4	5.1	- 1.7	6.4	- 1.4	4.9	- 0.4	4.5	-2.4	6.7	-1.4
December	3.3	- 3.6	- 4.0	- 9.8	3.6	- 3.7	- 2.5	- 9.0	0.4	-4.5	-1.4	-3.8
Mean	11.3	1.5	12.0	2.2	12.3	2.0	11.4	1.6	11.7	2.2	12.8	2.7

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989).

MEAN TEMPERATURE (^{O}C)

Month	1988		1989		LTA	
	Max.	Min.	Max.	Min.	Max.	Min.
January	- 1.7	- 10.5	1.2	- 7.4	- 3.3	- 12.2
February	- 3.0	- 11.9	- 3.8	- 11.7	- 1.7	- 10.8
March	- 3.4	- 6.1	0.5	- 7.9	2.1	- 5.8
April	10.5	0.8	8.7	0.7	11.1	0.1
May	20.7	6.9	18.4	19.0	5.9	6.6
June	24.3	9.5	23.2	12.3	23.4	10.7
July	29.5	14.6	27.1	12.5	26.7	14.1
August	26.7	14.3	24.4	11.6	25.0	12.9
September	20.7	8.8	20.8	9.9	20.0	9.1
October	10.5	2.1	15.5	3.5	12.8	3.4
November	7.2	0.9	4.3	- 3.4	6.1	- 0.8
December	- 0.3	- 7.8	-7.6	-15.9	-1.1	- 7.5
Mean	11.8	1.8	11.1	1.9	10.6	1.7

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989).

EXTREME TEMPERATURES (°C)

Month	1975		1976		1977		1978		1979		1980		1981	
	H	L	H	L	H	L	H	L	H	L	H	L	H	L
January	10	-26	6	-35	- 2	-36	8	-25	3.0	-31.5	10.0	-22.0	6.5	-33.5
February	8	-19	9	-26	6	-25	1	-31	6.5	-33.0	3.5	-26.0	10.0	-26.0
March	10	-21	17	-14	23	-14	8	-26	17.0	-16.5	13.0	-27.5	19.0	-17.5
April	18	-10	28	- 7	25	-11	17	- 7	23.0	- 8.0	19.5	- 5.5	21.0	- 6.0
May	30	1	25	1	32	- 2	31	- 4	30.0	- 1.0	31.0	0	27.0	- 3.5
June	32	4	32	3	30	- 2	33	2	31.0	2.5	31.5	- 0.5	34.0	- 1.0
July	34	6	32	6	34	6	33	6	32.0	5.0	29.5	5.0	32.0	6.0
August	36	4	31	2	31	4	33	6	31.5	3.0	30.5	8.0	29.5	4.0
September	26	- 1	29	1	29	4	29	- 2	30.0	- 3.0	26.0	- 1.0	27.0	- 2.5
October	22	- 9	22	- 7	18	- 3	22	- 6	24.5	- 3.0	24.0	- 5.5	17.0	- 5.0
November	19	- 6	13	-13	19	-22	20	-11	14.5	- 8.5	11.5	- 8.0	17.0	-12.0
December	13	-22	3	-23	11	-30	8	-26	9.0	-19.0	8.0	-31.5	5.0	-19.0
Annual	36	-26	32	-35	34	-36	33	-31	32.0	-33.0	31.5	-31.5	34.0	-33.5

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989).

EXTREME TEMPERATURES (°C)

Month	1982		1983		1984		1985		1986		1987	
	H	L	H	L	H	L	H	L	H	L	H	L
January	4.5	-30.5	4.5	-20.0	1.0	-33.0	-1.0	-29.5	7.0	-26.0	4.5	-25.0
February	5.0	-28.0	10.0	-23.0	14.5	-28.0	8.5	-28.5	2.0	-23.0	3.0	-26.5
March	17.0	-25.0	14.5	-20.5	9.5	-29.0	16.5	-19.0	24.0	-24.0	17.0	-16.0
April	22.0	-14.0	24.0	- 6.0	27.0	- 5.0	29.5	- 8.0	25.0	- 5.5	27.5	- 9.0
May	28.0	0	23.0	- 2.5	28.0	- 3.0	27.0	- 1.5	31.0	- 3.0	32.0	- 4.0
June	25.5	2.0	33.5	- 1.0	32.5	2.5	27.0	1.5	32.0	0	32.5	30.0
July	33.0	6.5	34.5	5.0	33.5	2.5	31.0	6.0	32.5	5.0	33.0	8.5
August	30.5	0.5	31.5	5.0	32.5	4.0	30.5	5.5	29.0	2.5	32.0	6.0
September	30.0	- 0.5	30.5	0	26.5	- 2.0	30.0	1.0	26.0	- 0.5	28.0	1.0
October	23.0	- 4.0	26.0	- 7.0	21.0	- 3.5	20.0	- 6.0	21.5	- 5.0	20.0	-5.0
November	18.0	- 9.5	17.0	-11.5	20.0	-11.0	18.5	- 7.0	15.0	-12.0	14.5	-17.0
December	20.0	-18.5	3.0	-22.5	16.0	- 1.5	6.5	-25.5	3.0	-19.0	12.0	-18.0
Annual	**33.0**	**-30.5**	**34.5**	**-23.0**	**33.5**	**-33.0**	**31.0**	**-29.5**	**32.5**	**-26.0**	**33.0**	**-26.5**

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989).

EXTREME TEMPERATURES (°C)

Month	1988		1989		LTA	
	H	L	H	L	H	L
January	12.0	- 28.0	10.0	- 25.0	12.0	- 36.0
February	6.5	- 22.0	5.0	- 27.0	14.5	- 33.0
March	15.0	- 18.0	21.0	- 24.0	24.0	- 29.0
April	18.5	- 4.0	18.0	- 5.5	29.5	- 14.0
May	32.0	- 0.5	29.0	- 1.0	32.0	- 4.0
June	35.5	0	30.0	6.0	35.5	- 2.0
July	36.0	5.0	32.5	3.5	36.0	2.5
August	34.5	4.0	32.0	2.5	36.0	.5
September	28.0	0	29.0	- 1.5	30.5	- 3.0
October	25.5	- 6.0	30.0	- 5.0	30.0	- 9.0
November	15.5	- 5.0	17.0	- 18.5	20.0	- 22.0
December	10.0	- 24.0	3.0	- 28.0	20.0	- 31.5
Annual	36.0	- 28.0	32.5	- 28.0	36.0	- 36.0

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989).

GROWING DEGREE DAYS (5°C Base)

Month	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	LTA
January	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
February	0	0	0	0	0	0	0	0	0	6	0	0	0	0	20	0
March	0	0	0	0	23	4	18	6	14	0	7	45	26	13	161	11
April	25	110	112	17	67	72	86	67	44	82	129	96	129	49	310	74
May	306	170	265	242	234	260	180	301	165	163	243	295	276	273	409	240
June	382	408	304	356	370	285	377	320	377	413	303	339	407	358	458	334
July	464	420	457	467	473	459	467	485	521	473	439	472	516	531	389	474
August	411	398	380	452	415	480	429	378	480	507	401	383	427	481	230	429
September	215	250	274	280	301	271	274	288	328	254	333	276	307	292	31	283
October	145	68	70	112	129	73	48	143	131	175	139	123	62	70	6	110
November	74	0	53	33	40	9	19	49	23	28	31	14	30	28	0	30
December	0	0	1	0	0	0	0	32	0	10	0	0	3	0	1	3
Annual	2022	1824	1916	1959	2052	1913	1898	2069	2083	2111	2025	2043	2183	2095	2016	1989

LTA = Long Term Average for Muck Research Station, R.R. # 1 Kettleby, Ontario, LOG 1JO
15 Years (1975-1989)

A temperature of at least 5.5°C is considered necessary for plant growth. Accumulated temperature (degree days) above 5.5°C is a measure of plant growth during the month.

EVALUATION OF THE SURFACTANT, AGRAL 90, FOR THE CONTROL OF CLUBROOT OF CABBAGE, 1989

Crop: Cabbage, cv. Gloria

Pest: Plasmodiophora brassicae, clubroot

Materials: Agral 90 (Nonylphenolethylene oxide condensate), QUINTOZENE (pentachloronitrobenzene) 75W

Methods: Cabbage seedlings were transplanted into naturally infested organic soil at the Bradford Muck Research Station on June 20. Treatments were applied in the transplant water (200ml/plant). A randomized complete block arrangement with 4 blocks per treatment was used. Each replicate consisted of one 3m row. Heads of marketable size were harvested on Aug. 21, and the remaining heads were harvested on Sept. 8.

Results: See table. Poor growth of seedlings treated with AGRAL 90 was observed within 1 week of transplanting. The plants were not under enough moisture stress to allow visual rating of wilting during the growth period.

Conclusions: AGRAL 90 at the 2 and 4 ml rate stunted cabbage growth and reduced the weight of the head. On the Aug. 21 harvest date, QUINTOZENE also reduced head weight, while not significantly reducing the clubbing on the roots. At this harvest date, both rates of AGRAL 90 reduced clubbing, but this did not have a positive effect on head weight. On the Sept. 8 harvest date, there was no significant difference in clubbing among any of the treatments. The AGRAL 90 treatments again had lighter heads than the untreated check or QUINTOZENE treatment. In muck soil, AGRAL 90 at 2 or 4 ml per plant at transplanting, is phytotoxic to cabbage seedlings.

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EVALUATION OF THE SURFACTANT, AGRAL 90, FOR THE CONTROL OF CLUBROOT OF CABBAGE, 1989 - continued

Harvest Date	Treatment	Evaluation at Harvest	
		Roots**	Wt. of Head kg
Aug. 21	Untreated check	3.4 a	2.44 d*
	2ml AGRAL 90	4.4 b	1.53 b
	4ml AGRAL 90	4.2 b	1.10 a
	QUINTOZENE 75 WP 1.5g	3.6 a	2.14 c
Sept. 8	Untreated check	4.0 a	2.38 b
	2ml AGRAL 90	4.0 a	1.84 a
	4ml AGRAL 90	3.6 a	1.82 a
	QUINTOZENE 75 WP 1.5g	3.7 a	2.46 b

* Numbers in a column followed by the same letter are not significantly different at the 5% levels, Protected LSD.

** Clubbing of roots were rated on a scale of 1-5. 1 = complete club, no fibrous roots, 5 = no clubbing, only fibrous roots.

CARROT CULTIVAR TRIALS - 1989 - PACKAGING TYPES

MANAGEMENT PROCEDURES

Fertilizer: 270 kg/ha 50-0-0 + 15 kg/ha Borax was worked in deeply with a rotovator.

Seeded: May 24 - 26 & 29 using a V belt seeder equipped with a 5 cm wide scatter shoe. The seeding rate was 82 seeds/m. Rows were 50 cm apart. The Main Trial was replicated three times. The Adaptation and Observation Trials were not replicated.

Weed Control: Post-emergence: 3 applications of .66 kg/ha Lorox

Minor Elements: 1 foliar spray of 1.0 kg/ha Solubor
3 foliar sprays of 3.0 kg/ha Epsom Salts

Insect and Disease Control:

2 foliar sprays of .28 L/ha Cymbush
2 foliar sprays of 3.25 kg/ha Sevin
1 foliar spray of 1.1 kg/ha Diazinon
1 foliar spray of 1.0 L/ha Dibrom
3 foliar sprays of 3.2 L/ha Bravo

Harvest: The Main Trial was harvested Oct. 19, Adaptation on Oct. 18 and Observation on Oct. 27. All trials were immediately placed in a temperature and humidity controlled storage (0°C) after harvest.

EVALUATION

The cultivars were evaluated after 8 weeks in storage.

Marketable Yield t/ha + b/a: The marketable yield includes the packaging size, 19 to 44 mm (3/4" to 1 3/4") as well as the oversize > 44 mm (1 3/4" +).

Score: The average of the seven marks from shape to core size.

% Cavity Spot and Degree: The number indicates the percentage of roots with cavity spots. The letters indicate the degree to which the roots were affected.
VL = Very Light - cavity spots are few and barely visible. L = Light - few, small spots.
M = Medium - roots borderline unmarketable. H = Heavy - large cavity spots, roots unmarketable.
VH = Very Heavy - many large cavity spots, roots unmarketable eg. 50H - 50% of the roots were heavily infested with cavity spots, roots unmarketable.

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MANAGEMENT PROCEDURES

EVALUATION - continued

Rusty Root: Rusty root was evaluated at harvest. 5 = Most Desirable, no rusty roots. 4 = Very few roots affected, no effect on root development. 3 = Many rust coloured roots hairs, and some rat tailing. 2 = Many rust coloured root hairs, definite rat tailing, root flesh reduced. 1 = Least Desirable, no flesh to the root, only a rat tail with a mass of root hairs.

Blight: Regular fungicide applications were discontinued on September 1 to allow the cultivars to be evaluated for tolerance to leaf blights. Evaluation took place Oct. 16. 5 = most desirable, no blight. 4 = mild blight on leaves, nothing on petioles. 3 = blight on leaves, a few lesions on petioles. 2 = severe blight on leaves, numerous lesions on petioles. 1 = tops completely rotted, crop can not be harvested.

CARROT CULTIVAR MAIN TRIAL - 1989 - PACKAGING TYPES

Cultivar	Source	Marketable Yield t/ha	Marketable Yield b/a	% Oversize	% Marketable	Root Length (cm)	Root Width (cm)	Uniformity Shape	Uniformity Size	Appearance	Resistance to Greening	Colour Internal	Colour External	Core Size	Score	% Cavity Spot & Degree	Blight
CX 6093	A.Ch.	97	1728	31	86	23	3.6	4.3	4.1	4.3	4.1	4.0	4.2	3.8	4.12	57L	3.7
Canada Super X	PES	96	1707	24	89	23	3.3	3.8	3.7	3.6	4.3	3.8	4.0	4.0	3.88	77L	4.0
Six Pak	HM	98	1749	18	91	22	3.2	4.0	3.7	4.0	4.1	3.7	4.1	4.1	3.96	47VL	4.3
24 Karat	FM	100	1784	17	92	21	3.4	3.8	3.7	3.8	3.8	3.7	3.8	3.7	3.76	43VL	3.3
Caro-Brite	Asg	79	1404	19	78	21	3.2	3.8	3.8	3.7	4.6	3.9	4.0	4.0	3.96	80L	4.7
SDc 1373	CS	91	1620	24	87	21	3.3	3.8	3.9	3.8	4.3	4.0	4.0	3.8	3.94	33L	4.3
Caro-Gold	Asg	79	1404	18	75	21	3.2	3.8	3.8	3.8	4.7	4.0	4.2	4.0	4.04	70L	4.3
Golden State	A.Ch.	94	1681	16	82	20	3.1	3.7	3.8	3.7	4.6	4.1	4.0	4.1	4.00	67L	3.7
Chancellor	Asg	107	1916	32	93	20	3.3	3.6	3.7	3.7	3.8	3.7	4.0	3.8	3.75	70VL	4.0
Prospector	PETO	99	1768	12	87	20	3.2	4.0	3.8	3.9	4.2	3.8	3.8	4.0	3.93	40L	4.3
Cello King	NK	93	1650	13	83	20	3.1	4.0	3.7	3.9	4.4	4.0	4.0	4.0	4.00	60L	3.7
Discovery	Sieg	89	1588	4	89	20	2.9	3.9	4.0	3.7	4.6	4.0	3.9	4.0	4.01	60L	4.3
Cellobunch	Asg	122	2168	25	86	20	3.2	4.0	3.8	3.8	3.9	3.9	3.8	4.0	3.89	50VL	4.0
Avenger	PETO	91	1617	20	83	20	3.1	3.8	3.7	3.8	4.1	3.7	3.8	4.0	3.84	70L	3.3
Six Pence	HM	94	1676	23	93	19	3.3	3.7	3.7	3.7	4.3	3.7	3.9	3.8	3.83	67VL	4.0
Aristo Pak	JHK	105	1870	27	91	19	3.4	3.7	3.6	3.6	4.0	3.7	3.8	3.8	3.73	67L	3.7
Sp. Premium 80	JHK	112	1988	24	88	19	3.5	3.6	3.8	3.6	4.1	3.7	3.9	4.0	3.81	70VL	4.3
Vitasweet 711	A+C	78	1395	13	81	19	3.3	3.9	3.6	3.6	4.7	4.0	4.0	3.7	3.92	67L	4.3
Ingot	A.Ch.	111	1983	15	86	18	3.2	3.8	3.8	3.8	4.0	3.9	4.1	4.1	3.93	70L	4.3
Centennial	Asg	114	2025	26	88	18	3.3	3.6	3.7	3.4	3.8	3.6	3.9	4.0	3.71	57L	4.3
Seminole	Sun	81	1450	9	81	18	3.2	3.7	3.6	3.3	4.1	3.7	4.0	3.8	3.73	67L	4.3
Huron	Sun	96	1708	16	85	18	3.3	3.6	3.8	3.3	4.2	3.7	3.9	4.0	3.78	47L	4.0
Mokum	Swy	111	1983	5	75	17	3.1	3.8	4.2	3.7	2.9	3.7	3.9	4.2	3.77	63L	4.0
Apache	Sto	89	1584	19	89	17	3.6	3.7	3.6	3.2	4.3	3.7	4.1	3.6	3.74	53L	4.3

5 = Most Desirable 4 = Good 3.7 = Average

Listed in Order of Length

Legend: **Root Length (cm):** 20 cm = 8 inches

All cultivars received a 5 for Rusty Root except for Huron which received a mark of 4. Mokum was observed to be brittle and have weak tops.

See index for cultivars suitable for slicing.

CARROT CULTIVAR ADAPTATION TRIAL - 1989 - PACKAGING TYPES

Cultivar	Source	Marketable Yield t/ha	Marketable Yield b/a	% Oversize	% Marketable	Root Length (cm)	Root Width (cm)	Uniformity Shape	Uniformity Size	Appearance	Resistance to Greening	Colour Internal	Colour External	Core Size	Score	% Cavity Spot & Degree	Blight
Astra	Agri	92	1639	9	86	14	3.2	3.7	4.0	2.7	3.0	3.7	3.7	4.0	3.54	20L	4.0
Hanse	Agri	86	1529	6	79	15	3.4	3.7	4.0	2.7	2.7	3.7	4.0	4.0	3.54	30VL	4.0
Michel	Agri	98	1737	7	78	15	3.3	3.7	4.0	3.0	2.0	3.7	3.7	4.0	3.44	20VL	4.0
Apollo	A.Ch.	92	1643	14	88	20	3.1	3.7	3.7	3.7	4.0	3.7	4.0	3.7	3.79	100L	4.0
Orlando Gold	A.Ch.	82	1461	8	87	21	3.3	3.7	4.0	4.0	4.0	4.0	4.3	3.7	3.96	70VL	4.0
Plato	A.Ch.	103	1833	16	91	21	3.3	3.7	3.7	3.7	4.0	4.0	4.3	3.7	3.87	80VL	4.0
CX 8735	A.Ch.	87	1556	38	92	24	3.5	3.7	3.3	3.0	4.3	4.3	4.3	3.7	3.80	90L	4.0
Brandywine	Aris	96	1712	10	83	17	3.7	3.7	3.7	3.3	2.7	3.7	3.7	3.7	3.50	60VL	4.0
Vodka	Aris	31	557	0	30	15	3.2	3.7	4.0	3.0	2.0	3.3	3.7	3.7	3.34	80H	3.0
Caropak	Asg	106	1890	10	87	22	3.3	4.0	3.7	4.0	3.7	3.7	4.0	3.7	3.83	70L	3.0
Paramount	Asg	123	2184	16	86	20	3.3	3.7	3.3	3.7	3.0	3.7	4.0	3.7	3.59	60L	3.0
Caro-Choice	Asg	95	1691	14	85	21	3.5	4.0	4.0	4.0	4.0	4.0	4.0	3.7	3.96	50VL	4.0
Caro-Pride(3622)	Asg	91	1620	11	84	22	3.1	3.7	3.7	3.7	4.3	4.0	4.0	4.0	3.91	70L	5.0
Nassau	BEJO	153	2731	25	94	17	3.7	3.7	4.0	3.3	3.0	3.7	4.0	4.0	3.67	40VL	4.0
A-Plus	Cro	102	1807	32	90	19	3.5	3.7	3.3	3.7	4.0	4.0	4.0	4.0	3.81	60L	4.0
Harvestmore	Cro	101	1791	18	92	20	3.2	3.7	3.7	3.7	3.7	3.3	4.0	4.0	3.73	40VL	4.0
XPH 86W137	Cro	106	1889	26	90	20	3.3	4.0	3.7	3.7	4.0	3.7	4.0	3.7	3.83	40L	4.0
XPH 87W239	Cro	77	1369	16	69	22	3.4	4.0	3.7	4.0	4.0	4.0	4.0	3.7	3.91	70L	4.0
Aubagne	FM	91	1623	16	82	18	3.4	3.3	4.0	3.3	2.7	3.0	3.3	4.0	3.37	20L	3.0
Madamoiselle	FM	98	1746	31	87	17	3.7	3.7	3.7	3.3	3.0	3.7	3.7	3.7	3.54	60L	4.0
Nanco	FM	76	1344	10	79	16	3.4	4.0	4.0	3.3	3.0	3.7	4.0	3.7	3.67	80M	4.0
Primo	FM	98	1746	7	75	18	3.7	3.7	4.0	3.3	3.0	4.0	4.0	3.7	3.67	100M	4.0
Touchon	FM	83	1477	7	71	19	3.5	4.0	4.0	3.0	2.3	3.0	3.3	4.0	3.37	80M	4.0
FM 268	FM	78	1392	14	81	18	3.7	3.7	3.7	3.3	3.0	4.0	4.3	4.0	3.71	90L	4.0

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CARROT CULTIVAR ADAPTATION TRIAL - 1989 - PACKAGING TYPES - continued

Cultivar	Source	Marketable Yield t/ha	Marketable Yield b/a	% Oversize	% Marketable	Root Length (cm)	Root Width (cm)	Uniformity Shape	Uniformity Size	Appearance	Resistance to Greening	Colour Internal	Colour External	Core Size	Score	% Cavity Spot & Degree	Blight
FM 351	FM	82	1461	8	85	21	3.1	4.0	3.7	3.7	3.7	3.7	3.7	3.7	3.74	70L	5.0
Pak Mor	HM	105	1860	70	97	23	3.5	4.0	3.3	4.0	3.7	3.3	4.3	3.7	3.76	70VL	3.0
HMX 5281	HM	101	1791	17	89	20	3.4	4.0	3.7	3.7	4.0	4.0	4.3	4.0	3.96	30VL	4.0
Nantalia	NZ	67	1196	4	93	16	3.0	3.7	3.7	3.7	3.3	3.7	4.0	3.7	3.69	80VL	4.0
NIZ 23-623	NZ	106	1887	9	92	20	3.1	3.7	3.7	3.7	4.0	3.7	3.7	4.0	3.79	40L	4.0
Flame	NK	117	2084	35	95	17	3.2	3.3	3.3	3.3	4.3	3.7	4.3	3.7	3.70	50L	4.0
NVH 1014	NK	70	1242	7	73	21	3.2	4.0	3.7	4.0	4.3	3.7	4.3	3.7	3.96	40VL	3.0
Parano	Nun	90	1606	3	89	19	3.0	3.7	3.7	3.7	3.0	4.0	4.0	4.0	3.73	60VL	4.0
Flaron	OE	156	2771	35	91	19	3.6	3.7	3.3	3.7	3.3	3.7	4.0	3.7	3.63	90VL	4.0
Naron	OE	90	1600	10	86	16	3.0	4.0	3.7	3.7	3.0	3.7	4.0	4.0	3.73	40VL	4.0
Narova	OE	124	2202	0	79	16	2.7	4.0	4.3	3.7	3.0	3.7	3.7	4.3	3.81	50L	4.0
Dagger 78	PES	83	1470	11	85	21	2.9	4.0	3.7	3.7	4.7	3.7	4.0	4.0	3.97	70L	4.0
Good Pak	PES	125	2218	27	93	20	3.3	3.7	3.7	3.7	3.7	3.7	4.0	3.7	3.74	10L	3.0
Small Core	PES	111	1918	5	88	16	2.8	3.7	3.7	3.3	2.7	3.3	3.3	4.0	3.43	90VL	3.0
EXP 236	PES	59	1057	30	79	24	3.2	4.0	3.3	3.3	3.7	3.7	4.0	3.7	3.67	70M	4.0
Estelle	PETO	108	1921	4	75	18	3.5	4.0	4.0	3.7	3.7	3.7	4.3	4.3	3.96	70VL	4.0
Almaro	RS	103	1839	21	97	20	3.4	4.3	3.7	3.7	2.7	3.3	4.0	4.0	3.67	50VL	4.0
Fincor	RS	76	1351	13	80	19	3.2	3.3	3.7	3.3	2.0	3.7	4.0	4.3	3.47	40L	4.0
Lindoro	RS	166	2949	44	91	18	3.7	4.0	3.7	3.7	2.7	3.7	3.7	4.0	3.64	30VL	4.0
Minicor	RS	78	1381	2	78	18	3.1	3.7	3.7	3.3	2.7	3.7	4.0	4.3	3.63	50VL	4.0
Tamino	RS	104	1857	37	90	18	3.3	3.7	3.7	3.3	3.0	3.7	4.0	4.0	3.63	30VL	4.0
Bergen	Swy	126	2245	25	96	20	3.7	3.7	3.7	3.7	3.3	3.7	4.0	3.0	3.59	20VL	4.0
Flaxton	Swy	91	1618	39	96	20	4.0	3.7	3.3	3.7	3.7	4.0	4.0	3.3	3.67	40VL	4.0
Fontana	Swy	154	2748	54	96	16	3.6	3.3	3.3	3.3	3.3	4.3	4.0	3.7	3.60	40VL	4.0

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CARROT CULTIVAR ADAPTATION TRIAL - 1989 - PACKAGING TYPES - continued

Cultivar	Source	Marketable Yield t/ha	Marketable Yield b/a	% Oversize	% Marketable	Root Length (cm)	Root Width (cm)	Uniformity Shape	Uniformity Size	Appearance	Resistance to Greening	Colour Internal	Colour External	Core Size	Score	% Cavity Spot & Degree	Blight
Nandrin	Swy	133	2359	15	90	19	3.7	4.0	4.0	3.3	2.7	3.7	4.0	3.7	3.63	70VL	4.0
Nantucket	Swy	120	2129	13	97	15	3.3	3.7	3.7	3.7	2.7	4.0	4.0	4.0	3.69	60L	5.0
Napoli	Swy	146	2602	12	86	22	3.7	4.0	3.7	3.7	2.7	4.0	4.0	3.7	3.69	80VL	4.0
Narbonne	Swy	129	2287	34	96	18	3.6	3.7	3.7	3.7	3.3	3.7	4.0	3.7	3.69	60VL	4.0
Narman	Swy	99	1755	28	95	18	3.7	3.7	3.7	3.3	3.0	3.7	3.7	3.3	3.49	40VL	5.0
Nelson	Swy	99	1764	4	92	17	3.4	4.0	4.0	3.7	3.0	4.3	3.7	4.0	3.81	50L	4.0
Nevada	Swy	100	1784	28	94	19	3.7	3.7	3.7	3.7	3.3	3.3	4.0	3.7	3.63	30VL	4.0
Romosa	Swy	104	1855	16	93	17	3.4	3.7	3.7	3.3	3.7	4.0	4.0	3.3	3.67	40VL	4.0
Shamrock #1	Sham	99	1755	32	95	19	3.4	3.7	3.3	3.7	3.7	3.7	3.7	3.7	3.64	50L	4.0
Sierra	Sieg	114	2029	31	84	18	3.2	3.7	3.3	3.7	4.0	3.7	3.3	4.0	3.67	70VL	3.0
Canuck	Sto	93	1657	30	82	20	3.4	3.7	3.7	3.7	4.3	3.7	3.7	4.3	3.87	60L	4.0
Eagle	Sto	132	2353	10	89	19	3.4	3.3	3.7	3.7	3.3	3.3	3.7	3.7	3.53	70L	4.0
Earlibird Nant.	Sto	131	2325	20	90	15	3.5	3.7	4.0	3.0	3.0	3.7	3.7	4.0	3.59	100L	4.0
Orange Sherbet	Sto	122	2179	32	87	19	3.2	3.7	3.3	3.7	4.0	3.7	3.7	4.0	3.73	70L	4.0
Spec. Nant. 616	Sto	101	1798	8	75	18	3.5	3.7	3.7	3.7	3.3	3.7	3.7	3.7	3.64	30L	3.0
Touchon Deluxe	Sto	106	1878	26	93	17	3.5	3.7	3.7	3.7	3.3	3.7	3.7	3.7	3.64	70L	4.0
SR 455	Sun	97	1730	30	90	19	3.6	3.7	3.3	3.7	4.3	4.0	4.0	3.7	3.81	60VL	4.0
SR 462	Sun	73	1296	8	70	17	3.4	3.7	3.7	3.7	4.7	4.0	4.0	4.0	3.97	80VL	3.0
SR 545	Sun	95	1686	26	91	19	3.8	3.7	3.7	3.7	4.7	3.7	3.7	3.7	3.84	80VL	3.0
SUNEX 3209	Sun	91	1627	45	85	19	3.5	4.0	3.3	3.7	4.7	3.7	4.3	3.7	3.91	80L	4.0
SUNEX 3211	Sun	101	1803	31	90	19	3.8	4.0	3.3	3.7	4.3	3.3	3.3	3.7	3.66	60L	4.0
SUNRE 3218	Sun	85	1513	10	80	20	3.2	3.7	3.7	4.0	4.7	3.7	3.7	3.7	3.89	20VL	4.0
SUNRE 3222	Sun	79	1404	14	82	18	3.3	3.7	3.7	3.7	4.7	3.7	4.0	3.7	3.89	30VL	4.0
TX-CT003	Tak	88	1558	21	81	18	3.2	3.7	3.7	3.7	4.0	3.7	3.7	4.0	3.79	70VL	4.0

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CARROT CULTIVAR ADAPTATION TRIAL - 1989 - PACKAGING TYPES - continued

Cultivar	Source	Marketable Yield t/ha	Marketable Yield b/a	% Oversize	% Marketable	Root Length (cm)	Root Width (cm)	Uniformity Shape	Uniformity Size	Appearance	Resistance to Greening	Colour Internal	Colour External	Core Size	Score	% Cavity Spot & Degree	Blight
TX-CT005	Tak	122	2172	22	89	20	3.3	4.0	3.7	3.7	4.3	3.7	3.7	4.0	3.87	30L	4.0
TX-CT007	Tak	122	1995	9	84	22	3.0	3.7	3.7	4.0	3.7	3.7	3.7	4.3	3.83	60VL	4.0
Lucky B	UW	118	2097	27	92	17	3.8	3.7	3.7	3.7	3.7	4.0	3.7	4.0	3.79	70VL	4.0
SDc 1371	CS	113	2015	26	90	21	3.4	4.0	3.7	4.0	4.0	3.7	3.7	3.7	3.83	40VL	4.0

5 = Most Desirable 4 = Good 3.7 = Average

Legend: **Root Length (cm):** 20 cm = 8 inches

All cultivars received a mark of 5 for Rusty Root, except for Touchon which received a mark of 4.
Sunre 3218, Primo, Vodka and Special Nantes 616 were found to have weak tops.
Cottony Core was observed in the cultivars Lindoro and Touchon Deluxe.
Narova was found to be brittle. The cultivars Astra, Hanse, and Michel were observed to be short.
Internal breakdown was observed in the cortex of the cultivar Nassau.

See index for cultivar suitable for slicing.

ROUND CULTIVARS

Karusell	Agri	41	733	8	87	3.8	3.2	3.0	3.0	3.3	2.0	3.0	3.7	3.0	3.00	70L	NA
Thumbelina	PETO	46	826	6	93	3.8	3.2	3.3	3.0	3.7	3.3	3.7	4.0	4.0	3.57	50L	NA
Planet	Sto	26	466	0	68	3.4	3.0	3.3	3.3	3.3	3.3	3.7	3.7	3.3	3.41	10M	NA

NA = Not Available Rusty Root and Blight marks are not available because these cultivars were harvested August 16.

Crown Shape: Karusell 4.3, Thumbelina 3.0, Planet 4.0, (See Carrot Processing Information)

The cultivar Planet had strong tops and seeders were observed.

CARROT CULTIVAR OBSERVATION TRIAL - 1989 - PACKAGING TYPES

Cultivar	Source	% Cavity Spot & Degree	Rusty Root	Blight	Comments
CX 6021	A.Ch.	60L	5	4	
CX 6097	A.Ch.	50L	5	4	
CX 7161	A.Ch.	80L	5	4	
XPH 3504	Asg	100L	5	4	
RNP 197	Asg	90M	5	3	
XPH 3706	Asg	60L	5	4	
XPH 3707	Asg	50L	5	4	
XPH 3708	Asg	50L	5	3	
1289	BEJO	50L	5	4	Nantes,slicer
1291	BEJO	30VL	5	4	Nantes,slicer, weak tops
1303	BEJO	70L	5	3	Poor shape
1304	BEJO	80L	5	4	
FMX 263	FM	60VL	5	4	
FMX 295	FM	40L	5	4	Nice
FMX 331	FM	90VL	5	4	
FMX 339	FM	60L	5	4	
FMX 350	FM	30L	5	4	
FMX 389	FM	40L	5	4	
HMX 7285	HM	50VL	5	4	
HMX 7286	HM	30VL	5	4	
JHK 22	JHK	20VL	5	4	
JHK 24	JHK	100L	5	4	
N1Z 623	NZ	40VL	5	4	
N1Z 626	NZ	80L	5	5	
N1Z 1596	NZ	60VL	5	4	
N1Z 1597	NZ	50L	5	4	
N1Z 1747	NZ	40VL	5	3	
N1Z 23-192	NZ	20VL	5	4	
N1Z 23-626	NZ	10L	5	4	
N1Z 23-1441	NZ	50L	5	4	

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CARROT CULTIVAR OBSERVATION TRIAL - 1989 - PACKAGING TYPES - continued

Cultivar	Source	% Cavity Spot & Degree	Rusty Root	Blight	Comments
N1Z 23-1596	NZ	40L	5	4	
N1Z 23-1597	NZ	30VL	5	4	
N1Z 23-1747	NZ	30L	5	3	
N1Z 23-2296	NZ	30VL	5	3	
NVH 1004	NK	0	5	3	
NUN 4506	NUN	20L	5	4	
NUN 6255	NUN	50L	5	4	
EXP 420	PES	20L	5	4	Long Nantes, slicer
EXP 620	PES	20VL	5	4	Not uniform shape
EXP 3211	PES	40L	5	4	
PSR 1486	PETO	10L	5	4	
PSX 4486	PETO	60L	5	4	
PSX 8284	PETO	60VL	5	4	
PSX 13983	PETO	40L	5	4	
EXP 1932	Sham	40L	5	4	
EXP 1934	Sham	20VL	5	4	
EXP 1954	Sham	40VL	5	4	
SSX 500	Sieg	40L	5	4	
SSX 600	Sieg	60VL	5	4	
SSX 700	Sieg	70L	5	4	
SSX 800	Sieg	90VL	5	4	
EXP 8748	Sto	80L	5	4	
EXP 8749	Sto	70L	5	4	
EXP 8750	Sto	40L	5	4	
EXP 8751	Sto	50L	5	4	
EXP 8752	Sto	70L	5	4	
EXP 8761	Sto	60VL	5	4	
EXP 8762	Sto	20VL	5	4	Nantes,slicer
EXP 8763	Sto	30L	5	4	
EXP 8764	Sto	70VL	5	4	

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CARROT CULTIVAR OBSERVATION TRIAL - 1989 - PACKAGING TYPES - continued

Cultivar	Source	% Cavity Spot & Degree	Rusty Root	Blight	Comments
EXP 8765	Sto	80VL	5	4	
EXP 8768	Sto	50L	5	4	
EXP 8766-8896	Sto	60L	5	4	
EXP 8767-8897	Sto	80L	5	4	
SR 434	Sun	60L	5	4	
SR 508	Sun	80M	5	4	
SR 522	Sun	100M	5	4	
SR 578	Sun	100L	5	4	
Sunre 3204	Sun	30L	5	4	
Sunre 3216	Sun	90L	5	4	
TX-CT002	Tak	60L	5	4	
TX-CT006	Tak	90L	5	4	
TX-CT008	Tak	80L	5	4	

5 = Most Desirable 4 = Good 3.7 Average

SLICING TYPE CARROT CULTIVARS - 1989

Cultivar	Source	Marketable t/ha	% Marketable	Root Length (cm)	Eye Appeal	Resistance to Greening	Colour		Core Size	% Cavity Spot & Degree	Rusty Root	Blight	Slicer	Score
							Internal	External						
Cultivars Grown in Processing Trials														
Flacino	RS	74	65	19	3.7	3.7	3.9	3.7	4.0	100L	5.0	4.0	3.7	3.79
Flamaro	RS	107	80	22	3.9	4.0	3.9	3.7	3.3	80L	5.0	4.0	3.7	3.84
Barnum	Swy	41	40	19	3.7	3.0	3.9	4.0	3.3	70H	5.0	4.0	4.0	3.70
Falcon	Swy	84	82	20	3.9	3.3	3.8	4.0	3.3	100M	5.0	4.0	4.0	3.74
Oranza	Swy	109	91	20	3.8	3.8	3.8	4.0	3.4	67M	4.7	4.3	3.7	3.76
Cultivars Grown in Packaging Trials														
Astra	Agri	92	86	14	3.5	3.0	3.7	3.7	4.0	20L	5.0	4.0	3.7	3.54
Michel	Agri	98	78	15	3.7	2.0	3.7	3.7	4.0	20VL	5.0	4.0	4.0	3.44
Brandywine	Aris	96	83	17	3.6	2.7	3.7	3.7	3.7	60VL	5.0	4.0	3.7	3.50
Nassau	BEJO	153	94	17	3.7	3.0	3.7	4.0	4.0	40VL	5.0	4.0	3.7	3.67
Aubagne	FM	91	82	18	3.5	2.7	3.0	3.3	4.0	20L	5.0	3.0	3.7	3.37
Nanco	FM	76	79	16	3.8	3.0	3.7	4.0	3.7	80M	5.0	4.0	4.0	3.67
Touchon	FM	83	71	19	3.7	2.3	3.0	3.3	4.0	80M	4.0	4.0	4.0	3.37
Naron	OE	90	86	16	3.8	3.0	3.7	4.0	4.0	40VL	5.0	4.0	4.0	3.73
Narova	OE	124	79	16	4.0	3.0	3.7	3.7	4.3	50L	5.0	4.0	4.0	3.81
Small Core	PES	111	88	16	3.6	2.7	3.3	3.3	4.0	90VL	5.0	3.0	4.0	3.43
Estelle	PETO	108	75	18	3.9	3.7	3.7	4.3	4.3	70VL	5.0	4.0	4.0	3.96
Almaro	RS	103	97	20	3.9	2.7	3.3	4.0	4.0	50VL	5.0	4.0	4.0	3.67
Lindoro	RS	166	91	18	3.8	2.7	3.7	3.7	4.0	30VL	5.0	4.0	4.0	3.64
Mokum	Swy	111	75	17	3.9	2.9	3.7	3.9	4.2	63L	5.0	4.0	3.8	3.77
Nandrin	Swy	133	90	19	3.8	2.7	3.7	4.0	3.7	70VL	5.0	4.0	4.3	3.63
Napoli	Swy	146	86	22	3.8	2.7	4.0	4.0	3.7	80VL	5.0	4.0	4.0	3.69

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SLICING TYPE CARROT CULTIVARS - 1989 - continued

Cultivar	Source	Marketable t/ha	% Marketable	Root Length (cm)	Eye Appeal	Resistance to Greening	Colour		Core Size	% Cavity Spot & Degree	Rusty Root	Blight	Slicer	Score
							Internal	External						
Nelson	Swy	99	92	17	3.9	3.0	4.3	3.7	4.0	50L	5.0	4.0	4.0	3.81
Romosa	Swy	104	93	17	3.6	3.7	4.0	4.0	3.3	40VL	5.0	4.0	3.7	3.67
Earlibird Nant.	Sto	131	90	15	3.6	3.0	3.7	3.7	4.0	100L	5.0	4.0	3.7	3.59
Spec.Nant.616	Sto	101	75	18	3.7	3.3	3.7	3.7	3.7	30L	5.0	3.0	4.0	3.64
Touchon Deluxe	Sto	106	93	17	3.7	3.3	3.7	3.7	3.7	70L	5.0	4.0	3.7	3.64

5 = Most Desirable 4 = Good 3.7 = Average

Legend: **Eye Appeal:** Average of the appearance or smoothness and uniformity of size and shape.
Slicer: A perfect cylindrically shaped root received a mark of 5.

See Carrot Trial write ups for explanation of other marks.

More information on these cultivars can be found in the Packaging and Processing Reports.

LONG TERM AVERAGE OF CARROT CULTIVARS - PACKAGING TYPES

Cultivar	Source	# Years Tested	Length cm	Length Inches	Marketable Yield t/ha	Marketable Yield b/a	% Mkb.	Score
Candy Pak	Cro	9	23.06	9.08	67.48	1201	86	4.27
Scout	PETO	3	22.78	8.97	57.75	1028	75	3.83
Orlando Gold	Sto	7	22.63	8.91	69.18	1231	86	4.18
Dagger 78	Sun	8	22.39	8.81	70.62	1257	84	4.21
Spartan Fancy 80	JHK	5	22.12	8.71	70.01	1246	83	4.05
Six Pak	HM	10	22.05	8.68	76.71	1365	87	4.10
Harvestmore	Cro	6	21.92	8.63	71.44	1272	84	3.89
Sweet-N-Crisp	Cro	4	21.82	8.60	69.68	1240	86	3.92
Flavor Pak	Cro	4	21.73	8.56	73.43	1307	89	3.97
Gold Pride	HM	2	21.72	8.55	80.65	1436	86	4.21
Imperator 58	Cro	9	21.69	8.54	50.34	896	78	3.64
Gold Pak 263	Asg	6	21.58	8.50	60.67	1079	85	3.91
24 Karat	FM	2	21.10	8.31	91.84	1635	91	3.75
Golden State	Asg	5	21.09	8.30	76.15	1355	83	4.10
Orange Sherbet	Sto	9	21.07	8.30	71.20	1267	85	3.85
Canada Super X	PES	5	20.99	8.26	77.13	1373	83	3.94
Caropak	Asg	8	20.93	8.24	74.11	1319	85	3.88
Chancellor	Asg	7	20.92	8.24	76.79	1366	83	3.86
Goldmine	Sun	3	20.82	8.20	71.68	1276	86	3.80
Diplomat	Asg	6	20.80	8.19	71.17	1267	84	3.93
Gold Pak 28	FM	12	20.76	8.17	55.91	996	85	3.84
Pak Mor	HM	5	20.74	8.16	62.40	1111	81	3.79
Six Pak II	HM	6	20.67	8.14	74.96	1334	87	4.01
Spartan Premium 80	Cro	6	20.60	8.11	92.03	1638	88	3.90
Paramount	Asg	7	20.55	8.10	82.14	1462	85	3.89

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LONG TERM AVERAGE OF CARROT CULTIVARS - PACKAGING TYPES - continued

Cultivar	Source	# Years Tested	Length cm	Length Inches	Marketable Yield t/ha	Marketable Yield b/a	% Mkb.	Score
Top Pak	HM	4	20.43	8.04	78.17	1392	87	3.86
Aristo Pak	Cro	6	20.40	8.03	80.21	1428	88	3.88
Sierra	NK	5	20.38	8.02	70.29	1251	83	3.93
Dart	Sun	2	20.30	7.99	70.00	1246	78	3.80
Cellobunch	Asg	7	20.24	7.97	87.06	1550	85	3.90
Prospector	PETO	4	19.96	7.86	88.87	1582	83	4.10
Dominator	Sun	13	19.74	7.77	63.88	1137	85	3.85
Discovery	Sieg	2	19.62	7.72	79.85	1421	87	4.06
Klondike Nantes	Sto	10	19.59	7.71	72.10	1283	85	3.87
Vitasweet 711	A&C	2	19.53	7.69	74.52	1326	86	4.05
Special Nantes 616	Sto	2	19.25	7.58	95.40	1698	84	3.65
Seminole	Sun	3	19.24	7.58	70.58	1256	79	3.85
Cello King	NK	4	19.11	7.52	81.68	1454	82	4.12
Six Pence	HM	3	19.05	7.50	76.60	1363	84	3.78
A Plus	Asg	3	18.71	7.37	70.96	1263	73	4.02
Huron	Sun	2	18.42	7.25	78.47	1397	84	3.91
Ingot	Sto	2	18.22	7.17	101.14	1800	86	3.90
Mokum	BEJO	3	18.03	7.10	103.99	1851	80	3.98
Spartan Classic 80	Cro	3	17.93	7.05	63.33	1127	78	3.78
Vitasweet 500	A&C	3	15.80	6.22	82.25	1464	82	3.76
Scarlet Nantes	Asg	8	14.50	5.71	66.00	1175	75	3.46

5 = Most Desirable **4 = Good** **3.7 = Average** **Listed in Order of Length**

CARROT CULTIVAR STORAGE TRIAL 1988-89 - PACKAGING TYPES

Cultivar	Source	** % Marketable	% Weight Change In Storage	% Decay	* Degree of Decay
Canada Super X	PES	93 a	0	7	3.1
Nelson	BEJO	91 ab	-4	5	3.4
A-Plus	Cro	89 ab	-5	6	3.4
PY 60	PES	86 ab	-1	13	3.2
Six Pak	HM	86 ab	-5	9	3.1
Orange Sherbet	Sto	85 ab	-2	13	2.7
Ingot	Sto	85 ab	-3	12	3.1
Mokum	BEJO	84 ab	-5	11	2.8
Dagger 78	Sun	84 ab	-2	14	2.2
24 Karat	FM	84 ab	-3	13	4.0
Vitasweet Variety 711	A&C	82 ab	-5	13	2.7
Golden State	A.Ch.	82 ab	-7	11	3.7
Orlando Gold	Sto	81 ab	-1	18	2.7
Prospector	PETO	77 abc	-2	21	3.1
Canuck	Sto	77 abc	-5	18	3.1
Spartan Premium	JHK	75 abc	-5	20	2.3
Caropak	Asg	74 abc	-2	24	2.9
Gold Pak	HM	73 abc	-4	23	2.4
Six Pak II	HM	73 abc	-4	23	3.0
Centennial	Asg	72 abc	+2	30	3.0
Scout	PETO	71 bc	-1	28	2.8
Cello King	NK	70 bc	-8	22	2.9
Six Pence	HM	67 bc	-5	28	1.6
Special Nantes 616	Sto	60 c	-4	36	2.0
Average		79	-3	18	2.9

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CARROT CULTIVAR STORAGE TRIAL 1988-89 - PACKAGING TYPES - continued

* 5 = No Decay, 1 = 100% of root area infected.

** Numbers in a column followed by the same letter are not significantly different at the 5% level, Duncan's New Multiple Range Test.

Listed in order of % Marketable.

Harvested October 17, 1988 and placed in cold storage where the relative humidity was maintained at 95 to 100%. On March 10, 1989, the samples were moved to a Filacell storage and covered with black plastic. The temperature in the Filacell was 1° to 4°C and the relative humidity was 87% to 93%.

3 Replications Judged: July 19, 1989. Total Storage period = 39 weeks

LONG TERM AVERAGES - CARROT CULTIVAR STORAGE TRIAL - PACKAGING TYPES

Cultivar	Source	# Years Tested	% Marketable	% Weight Loss in Storage	% Decay	Degree* of Decay
Spartan Classic 80	Sto	4	90.8	6.8	2.4	3.5
King Imperator	Sto	3	88.0	7.3	4.7	3.7
Gold Pak 28	Sto	3	86.7	10.0	3.3	4.2
HiPak	HM	4	86.2	9.3	4.5	4.1
Spartan Sweet 'A'	Cro	4	86.1	7.6	6.3	3.5
Spartan North 'A'	Cro	5	85.8	9.4	4.8	3.6
Canuck	Sto	7	85.6	8.1	6.3	4.3
Klondike Nantes	Sto	4	85.6	8.1	6.3	3.7
Lance	Sto	4	84.8	8.5	6.7	2.9
Grenadier	HM	5	84.6	8.8	6.6	3.6
Candy Pak	Cro	8	84.6	11.3	4.1	2.9
Spartan Fancy 80	Asg	4	84.5	10.3	5.2	3.4
Cutlass	Sun	4	84.3	9.3	6.4	3.5
Goldpak 263	Asg	4	83.9	9.0	7.1	3.7
A-Plus	Asg	3	83.9	11.8	4.3	3.2
Dominator	Sun	4	83.5	9.3	7.2	3.1
Spartan Delite 80	Asg	3	83.3	11.0	5.7	3.5
Orange Sherbet	Sto	6	82.9	9.0	8.1	2.8
Saber 78	Sun	4	81.4	10.8	7.8	3.1
Canada Super X	PES	3	79.9	6.6	13.5	2.8
Dagger 78	Sun	6	79.7	11.4	8.9	3.2
Pak Mor	HM	5	78.0	11.8	10.2	2.9
Golden State	Asg	4	77.9	9.6	12.5	2.6
Six Pak	HM	8	77.4	11.9	10.7	3.0
Prospector	PETO	2	77.0	4.7	18.3	3.1
Vitasweet 721	A&C	2	77.0	14.0	9.0	2.7
Sweet'N Crisp	Cro	3	75.9	15.7	8.4	2.8
Six Pak II	HM	6	75.3	11.4	13.3	2.3

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LONG TERM AVERAGES - CARROT CULTIVAR STORAGE TRIAL - PACKAGING TYPES - continued

Cultivar	Source	# Years Tested	% Marketable	% Weight Loss in Storage	% Decay	Degree* of Decay
Orlando Gold	Sto	6	75.2	12.7	12.1	2.2
Top Pak	HM	4	75.0	12.3	12.7	2.7
Mokum	BEJO	2	74.8	8.3	16.9	2.6
Chancellor	Asg	6	74.4	11.9	13.7	2.2
Cello King	NK	2	73.8	6.9	19.3	2.6
Paramount	Asg	3	73.0	13.3	13.7	3.1
Flavor Pak	Cro	3	72.3	15.5	12.2	2.6
Sierra	NK	3	72.0	10.6	17.4	2.5
Fanci Pak	NK	2	71.9	10.1	18.0	2.4
Cellobunch	Asg	3	71.8	14.4	13.8	2.0
Harvestmore	Cro	3	71.0	12.0	17.0	2.6
Seminole	Sun	2	71.0	12.0	17.0	2.5
Aristo Pak	Cro	5	70.8	13.6	15.6	2.3
Goldmine	Sun	3	69.6	12.8	17.6	1.8
Diplomat	Asg	4	69.0	15.2	15.8	2.8
Cimarron	HM	3	68.4	17.0	14.6	2.1
Special Nantes 616	Sto	2	68.3	7.4	24.3	2.0
Britepak	A&C	3	68.0	15.0	17.0	2.2
Caropak	Asg	4	67.0	10.7	22.3	2.2
Six Pence	HM	2	67.0	8.3	24.7	1.5
Gold Pride	HM	2	66.7	7.6	25.7	2.4
Debut	Asg	2	66.5	15.2	18.3	1.5
Scout	PETO	2	61.9	4.5	33.6	2.6

5 = Most Desirable 4 = Good 3.7 = Average Listed in order of % Marketable

Storage period was usually 9 months

CARROT CULTIVAR TRIALS - 1989 - PROCESSING TYPES

MANAGEMENT PROCEDURES

Fertilizer: 270 kg/ha 50-0-0 + 15 kg/ha Borax was worked in deeply with a rotovator.

Seeded: On May 16 and 17 using a V belt seeder equipped with a 5 cm wide scatter shoe. The seeding rate was 45 seeds/m. Rows were 50 cm apart. The Main Trial was replicated three times. Adaptation and Observation Trials were not replicated.

Weed Control: Pre-emergence: 1 application of 1.6 kg/ha Gesagard
Post-emergence: 3 applications of .66 kg/ha Lorox

Minor Elements: 1 foliar spray of 1.0 kg/ha Solubor
3 foliar sprays of 3.0 kg/ha Epsom Salts

Insect and Disease Control:

3 foliar sprays of .28 L/ha Cymbush
2 foliar sprays of 3.25 kg/ha Sevin
1 foliar spray of 1.1 kg/ha Diazinon
1 foliar spray of 1.0 L/ha Dibrom
3 foliar sprays of 3.2 L/ha Bravo

Harvest: The Main Trial was harvested Oct. 24, Adaptation on Oct. 25 and Observation on Oct. 27. All trials were immediately placed in a temperature and humidity controlled storage (0°C) after harvest.

EVALUATION

The cultivars were evaluated after 7 weeks in storage.

Marketable t/ha: Marketable yield of roots over 38 mm (1 1/2") in diameter and also those 19 to 38 mm (3/4" to 1 1/2") in diameter.

Weight/Root (g): The average weight of a root > 38 mm (1 1/2") in diameter.

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MANAGEMENT PROCEDURES - continued

EVALUATION - continued

Crown Shape: Rated on degree of indentation. The more the crown was indented, the lower the mark.

Score: The average of the 10 marks from uniformity to uniformity of colour.

% Cavity Spot & Degree: The number indicates the percentage of roots with cavity spots. The letters indicate the degree to which the roots were affected. VL = Very Light - cavity spots are few and barely visible. L = Light - few, small spots. M = Medium - roots borderline marketable. H = Heavy - large cavity spots, roots unmarketable. VH = Very Heavy - many large cavity spots, roots unmarketable. 50 H - 50% of the roots were heavily infested with cavity spots, roots unmarketable.

Rusty Root: Rusty Root was evaluated at harvest. 5 = Most Desirable, no rusty roots. 4 = Very few roots affected, no effect on root development. 3 = Many rust coloured root hairs, and some rat tailing. 2 = Many rust coloured root hairs, definite rat tailing, root flesh reduced. 1 = Least Desirable, no flesh to the root, only a rat tail with a mass of root hairs.

Blight: Regular fungicide applications were discontinued on Sept. 1, to allow the cultivars to be evaluated for tolerance to leaf blights. Evaluation took place Oct. 24. 5 = Most Desirable, no blight. 4 = Mild blight on leaves, nothing on petioles. 3 = Blight on leaves, a few lesions on petioles. 2 = Severe blight on leaves, numerous lesions on petioles. 1 = Tops completely rotted, crop can not be harvested.

CARROT CULTIVAR MAIN TRIAL - 1989 - PROCESSING TYPES

Cultivar	Source	Marketable t/ha	Weight/Root > 38 mm (g)	% Marketable	Root							Colour				Score	% Cavity Spot & Degree
					Length (cm)	Width (cm)	Uniformity	Smoothness	Crown Shape	Core Size	Resistance to Greening	External	Cortex	Cambium Zone	Core	Uniformity	
Camden	Sto	108	249	94	18	6.1	3.7	4.0	3.7	3.6	4.3	4.3	4.2	4.0	4.1	4.5	4.02	63L
Kazan	BEJO	94	207	90	20	5.1	3.8	3.6	3.8	3.7	3.8	4.0	4.3	4.0	4.1	4.5	3.95	73M
Processor II	Sto	119	242	95	18	5.8	3.8	4.0	3.6	3.4	4.0	4.3	4.1	3.8	4.1	4.1	3.92	53L
Dess Dan	Sun	99	218	86	20	5.5	3.6	4.0	3.7	3.8	4.3	4.1	4.2	3.9	4.0	4.1	3.97	70VL
Processor IV	Sto	91	243	85	22	4.9	3.9	4.0	3.8	3.9	4.2	4.2	4.2	3.9	3.9	4.0	4.00	73L
Fontana	Swy	124	247	92	20	5.3	3.8	3.8	3.6	3.7	3.7	3.9	4.2	4.0	3.8	4.0	3.84	77L
Sp. Bonus 80	Asg	84	236	84	19	5.4	3.4	3.8	3.7	3.7	3.7	4.0	4.3	3.7	4.0	3.9	3.82	70L
Flaxton	Swy	112	247	94	22	5.1	3.8	3.7	3.7	3.4	3.9	4.0	4.1	3.9	3.8	3.8	3.81	60L
Mark II	FM	107	238	90	16	6.3	4.1	3.9	3.6	3.6	4.0	4.1	4.2	3.7	3.8	3.7	3.86	50L
Kamaran	BEJO	101	252	80	20	5.1	3.8	4.3	3.6	3.7	3.3	3.8	4.0	3.9	3.8	3.9	3.81	100M
Oranza	Swy	109	234	91	20	4.8	3.7	3.8	3.8	3.4	3.8	4.0	4.1	3.6	3.7	3.7	3.76	67M
Sp. Premium	PES	93	247	84	21	5.4	3.7	3.7	3.7	3.7	3.6	4.0	4.2	3.4	3.8	3.6	3.73	80L
Eagle	Sun	111	283	87	24	4.9	3.6	3.9	3.8	3.2	3.3	3.9	3.9	3.7	3.7	3.7	3.67	57M
Giant 114	PES	105	263	91	22	5.3	3.0	3.7	4.1	2.3	2.7	3.9	3.9	3.7	3.6	3.7	3.45	77L

5 = Most Desirable 4 = Good 3.7 = Average Listed in order of Colour Mark.

Legend: **Marketable t/ha:** 56 t/ha = 25 T/A = 1000 bushels/a.

Cottony core was observed in the cultivar Eagle.
Kazan, Oranza and Spartan Premium were the only cultivars very lightly affected by rusty root.
All cultivars had a good tolerance to blight and received a mark of 4 or better.

See index for cultivars suitable for slicing.

CARROT CULTIVAR ADAPTATION TRIAL - 1989 - PROCESSING TYPES

Cultivar	Source	Marketable t/ha	Weight/Root > 38 mm (g)	% Marketable	Root: Length (cm)	Root: Width (cm)	Uniformity	Smoothness	Crown Shape	Core Size	Resistance to Greening	Colour: External	Colour: Cortex	Colour: Cambium Zone	Colour: Core	Colour: Uniformity	Score	% Cavity Spot & Degree
Carona	Agri	75	188	90	18	4.5	3.3	3.7	3.7	3.7	3.3	4.0	4.3	3.7	4.0	3.7	3.74	50L
Carovit	Agri	73	222	81	21	4.8	3.3	3.0	4.0	3.3	3.7	4.3	4.0	4.0	3.7	4.0	3.73	90M
Wis.Proc.B	A.Ch.	79	234	83	20	4.8	4.0	4.0	4.0	4.0	4.7	3.7	4.0	4.3	4.0	4.7	4.14	70L
Wis.Proc.D	A.Ch.	84	200	82	18	5.4	4.0	4.0	3.7	4.0	4.3	4.0	4.3	4.3	4.3	4.7	4.16	70L
CX 6382	A.Ch.	115	321	86	23	5.5	4.3	4.0	3.7	3.3	4.0	3.7	3.7	4.0	3.7	3.7	3.81	70L
CX 6385	A.Ch.	108	251	94	18	5.5	3.7	4.0	3.7	3.3	3.7	4.0	4.0	3.7	3.7	3.7	3.75	80L
Carogold	Aris	77	203	88	18	5.1	3.3	3.7	4.0	3.3	3.7	3.7	4.0	3.7	3.7	3.7	3.68	80VL
Supervit	Aris	88	202	93	20	5.0	3.7	3.3	4.0	3.7	3.7	4.0	4.3	3.7	3.7	3.7	3.78	100L
XPH 985	Asg	86	203	96	20	4.7	3.3	4.0	3.7	3.7	4.0	3.7	4.0	3.7	3.7	3.7	3.75	40L
Flaron	OE	124	284	98	23	5.0	4.0	3.7	4.0	3.7	3.7	4.0	4.0	3.7	4.0	3.7	3.85	40L
GT 26	PES	85	271	68	17	6.1	4.0	3.7	3.3	3.7	3.7	4.0	4.0	3.3	3.7	3.3	3.67	100M
Fedora	RS	85	234	86	21	4.9	3.7	4.0	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.7	3.79	90L
Flacino	RS	74	247	65	19	4.8	3.7	3.7	3.7	4.0	3.7	3.7	4.3	3.7	3.7	3.7	3.79	100L
Flamaro	RS	107	294	80	22	4.6	3.7	4.0	4.0	3.3	4.0	3.7	4.0	4.0	3.7	4.0	3.84	80L
Liberno	RS	91	188	80	18	4.9	3.7	4.3	3.7	3.7	3.7	4.0	4.0	3.7	3.7	3.3	3.78	80M
Bangor	Swy	155	295	96	20	4.8	3.7	3.7	4.0	3.3	3.7	3.7	3.7	3.7	3.7	4.0	3.72	90M
Barnum	Swy	41	221	40	19	4.5	3.3	4.0	3.7	3.3	3.0	4.0	4.3	4.0	3.7	3.7	3.70	70H
Ferrara	Swy	124	319	96	22	5.6	3.7	3.7	4.0	3.3	3.7	4.0	4.0	4.0	3.7	3.7	3.78	90VL
Florence	Swy	90	235	84	20	4.7	4.0	3.7	3.7	3.7	4.0	3.7	4.3	4.0	3.7	3.7	3.85	100L
Laranda	Swy	82	264	76	20	5.0	3.3	3.7	4.0	3.3	3.7	3.7	3.7	4.0	3.7	4.0	3.71	60H
Vita Longa	Swy	16	36	81	20	5.4	3.7	3.3	4.0	3.0	3.3	3.7	4.0	4.0	3.3	3.7	3.60	90M
Falcon	Swy	84	285	82	20	4.9	4.0	3.7	4.0	3.3	3.3	4.0	4.0	3.7	3.7	3.7	3.74	100M
Sunex 3132	Sun	76	353	50	21	6.0	3.7	4.3	3.7	3.7	3.7	4.0	4.3	3.7	3.7	3.7	3.85	70L
Dan D	UW	53	222	79	18	5.5	4.0	4.0	4.0	4.0	4.3	4.0	4.3	4.7	4.3	4.7	4.23	60L

5 = Most Desirable 4 = Good 3.7 = Average

Legend: **Marketable t/ha:** 56 t/ha = 25 T/A = 1000 bushels/a.

The cultivar Wisconsin Processor B and Wisconsin Processor D had weak tops.
Vita Longa was observed to have a black discolouration in the cortex.
All cultivars had a good tolerance to blight and received a mark of 4 or better.

See index for cultivars suitable for slicing.

CARROT CULTIVAR OBSERVATION TRIAL - 1989 - PROCESSING TYPES

Cultivar	Source	% Cavity Spot + Degree	Rusty* Root	Blight*	Comments
CX 7345	A.Ch.	100 L	5	4	
XPH 87W101	Cro	60 VL	5	5	
XPH 87W318	Cro	60 L	5	5	
XPH 81W136	Cro	70 L	5	4	
FMX 291	FM	40 M	5	4	
NIZ 21-23	NZ	90 M	5	4	
NIZ 23-2158	NZ	30 L	5	4	
NIZ 23-2210	NZ	70 M	5	5	
NIZ 23-2259	NZ	80 M	5	4	
NUN 3152	NUN	30 M	5	4	
OE 3046	OE	70 M	5	4	
EXP 561	PES	70 M	5	5	Weak Tops
EXP 660	PES	70 M	5	5	
EXP 668	PES	40 M	5	4	
EXP 710	PES	70 M	4	5	
EXP 712	PES	70 M	4	4	
EXP 714	PES	100 M	5	4	
EXP 718	PES	100 M	5	4	
EXP 719	PES	80 L	5	5	
EXP 910	PES	Unsuitable, went to seed			
RS 83282	RS	80 M	4	4	
EXP 1904	Sham	60 L	5	5	
EXP 1903	Sham	30 L	5	4	
EXP 8760	STO	40 L	5	4	
SR 504	Sun	40 M	5	4	
SR 505	Sun	80 L	5	4	
SR 538	Sun	40 L	5	4	
SUNRE 3134	Sun	60 L	5	4	
SDc 1374	CS	100 VL	5	4	
SDc 1376	CS	40 VL	5	5	

* 5 = Most Desirable 4 = Good 3.7 = Average

LONG TERM AVERAGE OF CARROT CULTIVARS - PROCESSING TYPES

Cultivar	Source	# Years Tested	Marketable Yield t/ha	Marketable Yield T/A	Colour	Score
Berlicum Bierma	NZ	3	64.0	28.7	4.23	3.84
Processor II	Sto	6	95.9	42.8	4.16	3.93
Camden	Sto	6	83.1	37.1	4.15	4.00
Dess Dan	Sto	14	81.0	36.2	4.12	3.96
Danvers Gold	A.Ch.	2	73.4	32.7	4.12	3.88
Tahoe	NK	3	73.7	32.9	4.10	3.98
Spartan Bonus	Sto	11	75.0	33.5	4.08	3.94
Spartan Bonus 80	Asg	9	73.5	32.8	4.07	3.93
A&C 126	A&C	3	71.3	31.9	4.03	3.92
XPH 875	Asg	4	76.8	34.3	4.03	3.88
Casey	Asg	5	66.4	29.6	4.00	3.93
Spartan Delux	Jung	6	69.0	30.8	4.00	3.92
Lucky's Gold	A.Ch.	4	52.9	23.6	3.99	4.20
Spartan Winner	Jung	8	65.0	29.0	3.98	3.89
Midas Touch	FM	7	64.4	28.8	3.95	3.90
All Season Cross	Tak	4	76.0	34.2	3.95	3.84
XPH 985	Asg	4	81.0	36.2	3.94	3.80
Mark II	FM	8	80.9	36.1	3.94	3.81
Giant 114	PES	6	89.9	40.1	3.89	3.62
Ch. Red Cored	A.Ch.	6	71.5	31.9	3.88	3.70
Royal Danvers	Agw.	4	70.0	31.2	3.86	3.84
Oranza	BEJO	5	79.6	35.6	3.85	3.70
Berlicum Berlinda	Asm	3	72.0	32.1	3.84	3.62
Spartan Premium	Cro	8	73.4	32.8	3.83	3.78
Danvers 126	Asg	12	67.1	30.0	3.77	3.66
Royal Chantenay	Sto	3	76.0	34.2	3.75	3.66
Gold King	NK	5	70.7	31.8	3.72	3.60
Red Core Chantenay	Asg	9	72.8	32.5	3.66	3.55

5 = Most Desirable - 4 = Good - 3.7 = Average Listed in Order of Colour

CARROT CULTIVAR STORAGE TRIAL 1988-89 - PROCESSING TYPES

Cultivar	Source	** % Marketable	% Weight Change In Storage	% Decay	* Degree of Decay
XPH 985	Asg	89 a	-5	6	4.0
Dess Dan	Sun	87 a	-1	12	3.1
Mark II	FM	85 a	+1	16	3.9
Giant 114	PES	84 a	+1	17	3.6
Chantenay Supreme	HM	82 a	+2	20	3.7
Spartan Bonus 80	Asg	81 a	-3	16	2.9
Berlanda	BEJO	81 a	+1	20	2.9
Sunre 3129	Sun	75 a	-3	22	3.4
Processor II	Sto	73 a	+2	29	3.7
Eagle	Sto	69 a	-5	26	3.3
Camden	Sto	69 a	0	31	3.5
Fontana	BEJO	60 a	-1	39	2.9
Danvers 126	PES	58 a	-2	40	2.8
Average		76	-1	23	3.4

* 5 = No Decay 1 = 100% of root area infected.

** Numbers in a column followed by the same letter are not significantly different at the 5% level, Duncan's New Multiple Range Test.

Listed in order of % Marketable.

Harvested October 18, 1988 and placed in cold storage where the relative humidity was maintained at 95% and the temperature maintained at 0°C to 1°C. On March 10, 1989, the samples were moved to a Filacell storage and covered with black plastic. The temperature in the Filacell was 1°C to 4°C and the relative humidity was 87% to 93%.

In this trial, a number of the cultivars gained rather than lost weight during the storage period. This unsual occurrence may be the result of the very dry field conditions that prevailed during the fall of 1988. Carrots that were under moisture stress when harvested, may have absorbed moisture from the saturated air in the storage, which would be reflected as weight gain.

3 replications Judged: June 28, 1989 Total storage period = 35 weeks

LONG TERM AVERAGES - CARROT CULTIVAR STORAGE TRIAL - PROCESSING TYPES

Cultivar	Source	# Years Tested	% Marketable	% Weight Loss In Storage	% Decay	Degree* of Decay
Spartan Premium	Sto	2	89.2	8.0	2.8	4.5
Danvers Gold	Jung	3	87.4	8.1	4.5	3.8
Dess Dan	Sun	9	84.5	8.6	6.9	3.5
Spartan Winner	Sto	3	84.1	9.3	6.6	4.3
XPH 985	Asg	3	83.2	8.7	8.1	3.1
Spartan Bonus 80	Asg	7	81.3	8.9	9.8	3.3
Red Cr. Chantenay	Asg	5	81.3	7.1	11.6	3.1
Mark II	FM	2	79.4	3.4	17.2	3.1
Camden	Sto	5	79.3	7.6	13.1	3.4
XPH 875	Asg	3	79.3	10.7	10.0	2.4
A&C 126	A&C	3	76.7	11.0	12.3	3.3
Triple Gold	Jung	3	76.0	9.7	14.3	3.8
King Midas	FM	2	76.0	9.5	14.5	3.0
Casey	Asg	4	75.5	9.0	15.5	3.5
Flamant	NZ	2	74.5	6.5	19.0	3.4
Processor II	Sto	5	74.5	7.8	17.7	3.3
Midas Touch	FM	3	74.1	10.3	15.6	3.5
Oranza	BEJO	3	73.3	6.3	20.4	2.8
Gold King	NK	3	71.7	6.3	22.0	3.7
Lucky's Gold	Jung	2	71.5	12.0	16.5	3.4
Danvers 126	Asg	6	69.0	7.2	23.8	2.7
Giant 114	PES	5	68.5	8.5	23.0	3.5
Chantenay Red Cored	A.Ch.	3	67.7	11.3	21.0	3.3
Tahoe	NK	2	67.0	13.5	19.5	3.0
Royal Danvers	Agw	3	66.0	9.3	24.7	2.7

* 5 = Most Desirable - 4 = Good - 3.7 = Average Listed in order of % Marketable

Storage period was usually 8 months

EARLY CELERY CULTIVAR TRIAL - 1989

MANAGEMENT PROCEDURES

Seeded: On March 14, eight cultivars were seeded in black plastic seedling trays (200 cells) filled with Pro-Mix G at 2-4 seeds/cell. The cultivars were thinned to 1 plant/cell at the 1st true leaf. Three additional cultivars were brought up from Vineland Research Station, Sunex 2304, 2306 and 2307.

Fertilizer: Greenhouse - 1 application of 20-20-20 at a rate of 3.1 kg/1000 L water.
- 2 applications of 10-52-10 at a rate of 3.1 kg/1000 L water.

Field - 651 kg/ha 100-20-50 + 20 kg Borax
- 2 side dressings of 100 kg/ha Ammonium Nitrate (33%).

Transplanted: Five replications were planted in the field on May 11 at a spacing of 68 cm X 15 cm. The three cultivars from Vineland were planted May 16.

Weed Control: 1 application of 2.2 kg/ha Gesagard 10 days after transplanting.

Insect & Disease Control:

3 foliar sprays of 3.25 kg/ha Sevin
2 foliar sprays of .280 L/ha Cymbush
2 foliar sprays of 1.4 L/ha Thiodan
1 foliar spray of 4.5 kg/ha Malathion
1 foliar spray of 1 L/ha Dibrom
3 foliar sprays of 2.25 kg/ha Dithane
1 foliar spray of 3.25 kg/ha Zineb
1 foliar spray of 3 L/ha Bravo

Minor Elements: 2 foliar sprays of 3 kg/ha Epsom Salts
2 foliar sprays of 9.5 kg/1000 L Calcium Nitrate
1 foliar spray of 1 kg/ha Solubor

Harvest: Harvest and evaluation took place July 26, Aug. 2 and Aug. 8, except for the cultivars Sunex 2304, 2306, and 2307. These were harvested and evaluated July 31, Aug. 8, and Aug. 15 to compensate for their later transplanting. Five stalks were cut per replicate per date.

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MANAGEMENT PROCEDURES - continued

EVALUATION

Marketable t/ha: The weight after the stalks were trimmed and cut to a length of 36 cm (14").

% 24's: The percentage of stalks which weighed >/= 1.0 kg but < 1.0 kg.

Nodal Cracking: Horizontal cracking on or below the nodes which is not caused by Boron deficiency.

EARLY CELERY CULTIVAR - MAIN TRIAL - 1989

Cultivar	Source	Harvest Date	Marketable t/ha	% Trim Loss	% 24's	Petiole Length (cm)	Total Length (cm)	Diameter (cm)	Compactness	Boron Deficiency	Nodal Cracking	Yellow Leaves	Overall Rate	% Seeders	
Florida 683	Sto	July 26	91	45	36	27	62	8.5	3.9	5.0	4.5	4.4	4.1	0	
Florida 683	Sto	Aug. 02	118	45	84	30	57	9.7	3.4	4.7	4.8	3.5	3.5	0	
Florida 683	Sto	Aug. 08	111	49	76	30	57	9.5	3.5	4.6	4.7	2.9	3.6	2	
Starlet	Sieg	July 26	90	46	28	34	63	8.3	4.2	4.5	4.9	4.4	4.3	0	
Starlet	Sieg	Aug. 02	114	43	88	31	58	9.4	4.3	4.7	4.8	3.8	4.1	0	L
Starlet	Sieg	Aug. 08	108	49	64	32	63	8.9	3.9	4.5	4.8	4.0	4.0	0	L
Ventura	Sto	July 26	102	47	64	33	65	9.4	3.9	5.0	4.8	3.7	3.7	0	
Ventura	Sto	Aug. 02	113	43	84	31	59	9.6	4.1	4.9	4.8	3.1	3.9	0	L
Ventura	Sto	Aug. 08	102	57	56	32	63	9.1	3.7	4.5	4.5	3.6	3.8	0	RL
Sunex 2304	Sun	July 31	90	43	28	31	57	8.4	4.5	4.6	5.0	4.3	4.5	0	
Sunex 2304	Sun	Aug. 08	112	45	100	35	62	9.4	4.2	4.3	4.6	3.7	4.3	0	L
Sunex 2304	Sun	Aug. 15	106	50	84	32	60	9.4	4.2	4.2	4.5	3.7	4.2	0	L
Bishop	HM	July 26	90	45	24	32	63	8.5	4.5	4.9	4.7	4.7	4.7	0	
Bishop	HM	Aug. 02	103	44	68	30	59	9.2	4.2	4.5	4.7	4.1	4.4	0	L
Bishop	HM	Aug. 08	111	49	84	31	60	9.6	3.9	4.1	4.6	3.8	4.1	0	L
Sunex 2306	Sun	July 31	88	43	24	34	60	8.4	4.4	4.5	4.9	4.2	4.4	0	
Sunex 2306	Sun	Aug. 08	107	45	88	32	62	9.1	3.9	4.3	4.6	4.4	4.1	0	
Sunex 2306	Sun	Aug. 15	115	44	84	31	60	9.7	3.7	3.5	4.3	3.6	3.9	0	
Imp. Utah 52-70	Sto	July 26	86	52	24	32	62	8.1	4.3	4.6	4.2	3.8	4.1	0	
Imp. Utah 52-70	Sto	Aug. 02	104	49	60	32	58	9.5	4.1	4.7	4.8	2.9	3.8	2	
Imp. Utah 52-70	Sto	Aug. 08	102	54	64	31	61	9.0	4.1	4.1	4.8	3.5	3.8	0	R
Deacon	HM	July 26	79	47	0	28	61	7.5	4.7	4.9	4.9	4.5	4.2	0	
Deacon	HM	Aug. 02	103	45	72	29	58	9.3	4.2	4.7	4.9	3.2	4.1	0	
Deacon	HM	Aug. 08	103	49	60	29	58	9.2	3.9	4.5	4.7	3.3	3.9	0	R

EARLY CELERY CULTIVAR - MAIN TRIAL - 1989 - continued

Cultivar	Source	Harvest Date	Marketable t/ha	% Trim Loss	% 24's	Petiole Length (cm)	Total Length (cm)	Diameter (cm)	Compactness	Boron Deficiency	Nodal Cracking	Yellow Leaves	Overall Rate	% Seeders	
Utah 5270 HK Imp.	Sieg	July 26	84	48	8	28	63	8.1	4.5	5.0	4.3	4.1	4.1	0	
Utah 5270 HK Imp.	Sieg	Aug. 02	104	46	88	29	58	8.9	4.1	4.8	4.9	3.2	4.2	0	
Utah 5270 HK Imp.	Sieg	Aug. 08	107	48	80	30	59	9.1	3.5	4.3	4.5	3.4	3.5	0	RL
Sunex 2307	Sun	July 31	88	49	32	35	58	9.1	3.7	3.4	4.5	3.9	3.5	0	
Sunex 2307	Sun	Aug. 08	102	51	72	31	61	9.1	3.3	3.1	4.5	3.5	3.2	2	
Sunex 2307	Sun	Aug. 15	93	55	28	30	60	8.7	3.3	3.6	4.3	3.4	3.4	4	
Tall Utah 52-70R	NUN	July 26	91	50	12	31	63	8.8	4.1	4.1	4.6	3.7	3.6	0	
Tall Utah 52-70R	NUN	Aug. 02	102	48	52	31	58	9.0	4.2	4.3	4.6	3.3	4.0	0	
Tall Utah 52-70R	NUN	Aug. 08	108	54	84	32	61	9.5	3.9	4.1	4.2	3.5	3.9	0	

5 = Most Desirable 4 = Good 3.7 = Average

Legend: Marketable t/ha: 67 t/ha = 30 t/a = 1000 carton/a

Cultivars with longitudinal splitting and rot are indicated with an "L" and "R" respectively.

NOTES

LATE LETTUCE CULTIVAR TRIALS - 1989

MANAGEMENT PROCEDURES

Fertilizer: 207 kg/ha 50-20-0

Seeded: July 6 at 40 seeds/m. Main Trials replicated three times. Adaptation Trials no replications.

Row Spacing: 43 cm x 30 cm

Thinning: July 31. Head - plants spaced 30 cm apart.
Romaine - Plants spaced 25 cm apart.

Minor Elements: 3 foliar sprays of 3 kg/ha Epsom Salts
2 foliar sprays of 9.5 kg/1000 L water Calcium Nitrate
1 foliar spray of 1 kg/ha Solubor

Insect and Disease control: 4 foliar sprays of 3.25 kg/ha Sevin
2 foliar sprays of 4.5 kg/ha Malathion
1 foliar spray of .7 L/ha Cygon
1 foliar spray of .125 L/ha Ripcord
3 foliar sprays of 2.25 kg/ha Dithane
2 foliar sprays of 2.25 kg/ha Zineb

Harvest: Harvest and Evaluation took place according to the maturity of each replicate.

LATE HEAD LETTUCE CULTIVAR MAIN TRIAL - 1989

Cultivar	Source	Days to Harvest	Weight/Carton 18 Heads (kg)	% Marketable	Reason Non-Marketable	Diameter (cm)	% Tipburn	Bottom Rot	Firmness	Uniformity	Internal Stem Length (cm)	Overall Rate	Comments
XP 5508	Asg	69	19	97	s.	17	0	3.9	4.3	4.2	5	4.2	
XP 5514	Asg	67	14	87	s.,br.	14	0	3.9	4.6	4.6	5	3.7	Small
XP 5517	Asg	68	14	87	s.	13	0	4.0	4.3	4.1	4	3.7	Small
Dynasty	FM	74	20	87	s.	16	7	4.0	3.3	2.5	16	2.0	Unsuitable
Saladcrisp	PETO	75	18	87	s.	16	7	3.8	3.5	3.7	5	3.3	
Diplomat	RS	69	16	83	s.	16	0	4.2	4.4	4.2	4	4.1	
Excel	RS	71	23	83	s.	18	0	4.0	4.2	4.2	5	4.3	
Ithaca	RS	69	19	87	s.	18	0	4.1	4.5	4.1	5	4.4	
Telda	RS	71	19	90	s.	18	0	4.3	3.9	3.4	10	2.6	Unsuitable
Ithaca	Sieg	71	16	80	s.,br.	17	0	4.1	3.8	4.0	4	4.0	

5 = Most Desirable - 4 = Good - 3.7 = Average

Legend: Wt./carton 18 Heads: 18Kg = 40 lbs
Reason Non-Marketable: br. = bottom rot
s. = soft

Unsuitable - Cultivar not tolerant to climatic conditions in the Bradford area.

LATE HEAD LETTUCE CULTIVAR ADAPTATION TRIAL - 1989

Cultivar	Source	Days to Harvest	Weight/Carton 18 Heads (kg)	% Marketable	Reason Non-Marketable	Diameter (cm)	% Tipburn	Bottom Rot	Firmness	Uniformity	Internal Stem Length (cm)	Overall Rate	Comments
XP 5506	Asg	66	18	100	--	17	0	4.0	4.3	4.3	5	4.3	
XP 5507	Asg	69	19	100	--	18	0	4.0	4.3	4.3	5	4.3	
XP 5519	Asg	63	17	90	s.	14	0	3.7	4.7	4.3	5	4.0	Small
XP 5524	Asg	66	22	80	s.	14	0	4.3	4.7	4.3	4	4.0	Small
XP 5526	Asg	71	17	90	s.	16	0	3.7	4.3	4.0	5	4.0	
Green Lakes	BO	69	17	100	--	15	0	4.0	4.3	4.0	5	4.0	
Ithaca	BO	69	20	100	--	18	0	3.7	4.3	4.3	6	4.7	
Montello	BO	67	19	100	--	15	0	4.0	4.7	4.7	6	4.7	
Ithaca	HM	69	18	100	--	17	0	3.7	4.3	4.3	5	4.3	
Montello	HM	69	17	100	--	16	0	4.0	4.3	4.0	5	4.0	
160 133	PETO	81	2	100	--	17	0	4.0	2.3	3.0	15	1.0	Unsuitable
Greenlake	RS	68	17	100	--	16	0	3.7	4.7	4.0	6	4.3	
Kelvin	RS	69	18	80	s.	17	0	4.0	3.7	3.3	7	3.3	
Montello	RS	68	20	100	--	15	0	3.7	4.7	4.3	6	4.3	
Raleigh	RS	71	17	100	--	15	0	4.0	4.7	4.0	6	4.0	Small
South Bay	RS	69	16	100	--	14	0	3.7	4.7	4.3	5	4.0	Small
RS 821	RS	69	17	100	--	17	0	3.7	4.0	3.7	5	3.7	
MX 214	Sak	71	17	90	s.	13	0	4.0	4.7	4.3	4	3.7	Small
Green Lake	Sto	69	16	70	s.	15	0	4.0	4.0	3.7	5	3.7	Small
Frosty	Sto	74	20	90	sl.	18	0	4.3	4.0	3.3	6	3.7	
Ithaca	Sto	69	18	70	s.	15	0	3.7	4.3	4.0	4	4.0	Small
South Bay	Sto	69	15	100	--	14	0	4.3	4.7	4.7	5	4.0	Small, oblong shape
Montello	Twi	68	15	100	--	13	0	3.7	4.7	4.0	4	3.7	Small
Lakeland	Toz	71	20	80	s.	17	0	3.7	3.7	2.7	19	1.0	Unsuitable
Gr.Lks.Mesa 659	RS	71	15	100	--	15	0	4.3	4.0	3.7	5	3.7	Small

5 = Most Desirable - 4 = Good - 3.7 = Average

Legend: **Weight Carton 18 Heads:** 18 kg = 40 lbs.
Reason Non-Marketable: sl. = slime s. = soft

Unsuitable = Cultivar not tolerant to climate conditions in the Bradford area.

LATE ROMAINE LETTUCE CULTIVAR MAIN TRIAL - 1989

Cultivar	Source	Days to Harvest	Weight/Carton 18 Heads (kg)	% Non-Marketable	Reason Non-Marketable	Diameter (cm)	Height (cm)	% Tipburn	Bottom Rot	Firmness	Uniformity	Internal Stem Length (cm)	Overall Rate	Comments
Corsica	A&C	67	16	93	s.	16	30	23	4.8	3.6	3.7	9	3.4	
Andros	Asg	66	13	97	s.	14	28	0	4.9	3.7	4.0	10	3.4	
Capri	Asg	66	14	93	s.	15	28	13	4.9	3.5	3.5	9	3.3	
Greentowers	HM	67	15	97	s.	15	29	23	4.8	3.9	4.0	10	3.8	
Romulus	PETO	67	18	73	e.,tb.	16	31	67	4.6	4.3	3.8	11	3.2	
Tall Guzmaine	RS	66	18	100	--	15	30	37	4.3	4.4	3.9	10	3.8	
Parris Island	RS	64	14	93	s.	14	29	3	4.8	3.7	3.7	11	3.4	
Tall Guzmaine	Sieg	67	16	100	--	15	31	23	4.7	4.3	4.2	10	4.0	
Parris Island	Sieg	66	12	90	s.	14	27	7	4.8	3.3	3.4	11	3.1	
Valmaine	Sto	65	14	77	se.s.dc.	15	28	40	4.6	3.6	3.4	10	3.0	bolts easily

5 = Most Desirable - 4 = Good - 3.7 = Average

Legend: **Weight/Carton 18 Heads:** 15 kg = 33 lbs

Reason Non-Marketable: s. = soft; tb. = tipburn; dc. = double center; e. = uneven emergence; se. = seeder

There was a wide variation of % tipburn among replicates for several of these cultivars.

LATE ROMAINE LETTUCE CULTIVAR ADAPTATION TRIAL - 1989

Cultivar	Source	Days to Harvest	Weight/Carton 18 Heads (kg)	% Marketable	Reason Non-Marketable	Diameter (cm)	Height (cm)	% Tipburn	Bottom Rot	Firmness	Uniformity	Internal Stem Length (cm)	Overall Rate	Comments
XP 5490	Asg	64	15	90	s.	15	28	0	5.0	3.0	4.0	13	2.0	Bolts easily
XP 5491	Asg	64	15	90	s.	14	31	0	4.7	3.7	4.0	15	3.7	Harvested late
XP 5749	Asg	64	21	100	-	16	34	20	4.3	4.3	4.3	11	4.3	
Parris Island	BO	64	15	100	-	13	28	0	4.7	3.7	4.3	11	3.7	
Valmaine	BO	65	18	100	-	17	32	20	4.7	3.7	4.3	9	3.7	
Odessa	NK	67	16	100	-	15	29	10	4.3	4.0	4.3	8	4.0	Blonde, ext. suckers
Padox	NK	67	15	100	-	14	29	20	4.3	4.3	4.3	7	4.0	Blonde, ext. suckers
Romance	NK	64	13	90	s.	13	26	60	5.0	3.3	4.3	6	3.0	Short, ext. suckers
Valmaine	RS	67	14	100	-	14	29	40	4.7	4.0	3.7	9	3.7	
PSX 50886	PETO	66	17	90	s.	16	30	20	4.7	4.0	4.0	10	3.7	
Parris Island	Sto	62	14	90	se.	15	28	10	5.0	3.7	3.7	11	3.7	Uneven germination
Cosmic	Toz	64	16	90	s.	14	25	40	4.7	3.7	3.7	7	3.0	Ext. suckers
G.S.	Toz	60	15	100	-	13	27	20	4.7	3.7	4.0	9	3.3	Short stubby
L.B.	Toz	64	13	90	se.	14	27	0	4.7	3.3	3.7	12	3.3	Bolts easily
Magestic Red	Sun	64	8	100	-	10	29	40	5.0	2.7	3.7	8	3.3	Red, needle like
Rosalita	BO	61	18	70	s.	9	28	NA	5.0	2.0	3.3	15	2.0	Red, upright,thin
Density	Toz	69	5	100	0	10	22	0	4.7	3.7	4.0	6	4.0	Miniature romaine

5 = Most Desirable - 4 = Good - 3.7 = Average **NA = Not available**

Legend: **Weight/Carton 18 Heads:** 15 kg = 33 lbs
Reason Non-Marketable: s. = soft
se.= seeder

Corsica from Royal Sluis did not emerge.

ONION CULTIVAR TRIALS - 1989

MANAGEMENT PROCEDURES

Fertilizer: 453.5 kg/ha 100-20-54 + 20 kg/ha Copper Sulphate

Seeded: All trials were seeded May 4 at 43 seeds/m, in rows spaced 43 cm apart. A V-belt seeder equipped with a 5 cm wide scatter shoe was used. The seed was coated with Pro-Gro at 60 g/2.3 kg seed. Lorsban 15G was applied at 18 kg/ha in the seed furrow. Main Trial was replicated three times. Adaptation and Observation Trials were not replicated.

Weed Control: Pre-emergence: 1 application of 2.5 L/ha Gramoxone
1 application of 2.5 L/ha Gramoxone + 2.5 L/ha CIPC

Loop Stage: 1 application of 9.0 L/ha Randox + 8 L/ha CIPC

Post-emergence: 2 applications of 140 ml/ha Goal
3 applications of 5.6 L/ha Randox
1 application of 1.6 L/ha Poast + 2 L/ha Assist

Minor Elements: 7 foliar sprays of 3.0 kg/ha Tecmangam

Insect and Disease Control:

2 foliar sprays of .28 L/ha Cymbush
2 foliar sprays of 1.0 kg/ha Diazinon
2 foliar sprays of .5 L/ha Dibrom
1 foliar spray of 2.4 kg/ha Malathion
2 foliar sprays of .17 L/ha Ripcord
5 foliar sprays of 1.0 kg/ha Dithane
3 foliar sprays of 2.25 kg/ha Zineb
2 foliar sprays of 3.0 kg/ha Dithane
1 foliar spray of 1.5 kg/ha Rovral

Sprout Inhibition: MH 60 SG was applied at 6.88 kg/ha in 550 L/ha water on August 17.

Harvest: The trials were pulled on September 14 and 15 and topped on September 26. The samples were placed in a forced air and temperature controlled storage.

.../ continued

MANAGEMENT PROCEDURES - continued

EVALUATION

All trials were evaluated late November after 8 weeks of artificial curing and storage.

Marketable Yield: # 1 smalls (32-44 mm) and # 1 large (over 44 mm)

Weight/Bulb (g): The total weight in grams of all bulbs divided by the total number of bulbs.

Firmness A: Evaluated on September 26, at harvest.

Firmness B: Evaluated in late November after artificial curing and drying.

Firmness C: Evaluated in July or August at the end of the Storage Trial

Skin Thickness: 4 = Most Desirable, 2 good skins, dry underneath. A score < 4 indicates less skin. A score > 4 indicates a thicker skin with a risk of increasing wetness and skin rot.

Score: The average of six marks from Firmness B to Neck Finish, excluding Skin Thickness. Internal Colour is included in the score for the Red Onion Trial.

NOTE: An Observation Trial of 86 numbered cultivars was grown for the benefit of the breeders. Evaluation was done by the breeders.

ONION CULTIVAR MAIN TRIAL - 1989

Cultivar	Source	Days to Maturity	Stand/Meter	Marketable Yield t/ha	Marketable Yield b/a	% No. 1 Smalls	% Non-Marketable	Weight/Bulb (g)	Firmness A	Firmness B	Uniformity Size	Uniformity Shape	Colour	Skin Thickness	Skinning	Neck Finish	Score
Aries	Asg	116	18	47	844	2	3	119	4.6	3.7	3.7	3.8	3.8	4.1	4.0	4.2	3.86
Flame (3272)	Asg	131	35	62	1111	6	9	84	4.3	3.7	3.7	3.7	3.7	3.9	4.0	4.1	3.82
Fortress (3330)	Asg	125	21	53	935	2	0	110	4.8	4.0	3.8	3.7	3.5	4.4	4.4	3.8	3.86
XPH 3246	Asg	123	27	67	1184	3	0	107	4.4	3.8	3.8	3.8	3.4	4.3	4.6	3.7	3.84
Citadel (3370)	Asg	121	22	58	1038	3	0	117	4.7	4.0	3.6	4.0	3.8	4.3	4.6	3.6	3.92
Hi Score	E.J.	126	17	41	729	3	3	108	4.6	3.7	3.5	3.6	3.8	4.1	4.5	3.9	3.81
Sweet Sandwich	E.J.	128	16	48	857	3	5	137	4.3	3.8	3.5	3.6	3.7	4.4	4.6	3.4	3.76
Trapps # 8	E.J.	122	25	49	875	8	2	88	4.6	3.8	3.7	3.8	3.7	4.3	4.3	3.8	3.85
Bronze Reserve	FM	128	16	52	932	1	4	144	4.4	3.6	3.3	3.8	3.4	4.4	4.6	3.7	3.72
Columbia	FM	116	23	45	805	8	4	89	4.7	3.7	3.4	3.6	3.7	4.1	4.0	4.0	3.73
Gibraltar	FM	127	25	55	977	5	2	95	4.6	4.0	3.7	3.7	4.0	4.3	4.4	3.8	3.93
Sassy Brassy	FM	128	20	57	1011	2	5	127	4.2	3.8	3.1	3.2	3.7	4.4	4.6	3.3	3.61
Advancer	HM	108	25	66	1172	2	1	117	4.3	3.6	3.9	4.1	3.7	3.9	3.9	4.1	3.88
Hustler	HM	111	19	48	853	2	2	114	4.6	3.5	3.8	3.7	3.4	3.8	3.9	4.2	3.75
Guardian (2612)	HM	130	20	35	618	1	38	122	4.4	4.2	3.9	3.6	3.4	4.3	4.7	3.6	3.90
Copra	Swy	120	22	50	886	3	2	101	4.8	4.2	3.9	4.1	3.8	4.3	4.4	4.1	4.09
Suntan	Swy	120	30	55	979	8	3	81	4.7	3.8	3.8	4.2	3.6	4.1	4.2	4.1	3.96
Bingo	Sto	119	28	53	939	9	1	82	4.8	4.0	3.7	3.6	3.9	4.1	4.2	4.1	3.91
Canada Maple	Sto	132	18	42	750	3	4	107	4.5	4.0	3.4	3.5	3.3	4.3	4.6	3.3	3.68
Exporter II	Sto	126	44	60	1064	21	4	61	4.4	3.8	3.3	3.6	3.6	4.0	4.0	3.8	3.67
Imp. Aut. Spice	Sto	116	22	47	831	5	6	99	4.8	3.9	3.6	3.4	3.7	3.8	4.0	3.9	3.75
Tarmagon	Sto	112	23	48	859	5	1	92	4.4	3.7	3.7	4.1	3.8	3.9	3.6	4.6	3.91
Capable	Sun	116	25	59	1051	4	2	106	4.3	3.7	3.3	3.6	3.6	3.9	4.0	3.9	3.67
Paragon	Sun	116	25	59	1052	7	0	104	4.6	4.0	3.9	3.8	3.7	4.1	4.2	4.0	3.93
Norstar	Tak	105	23	39	696	11	4	77	4.4	3.2	3.9	4.2	3.7	3.3	3.2	4.7	3.83

5 = Most Desirable, except for Skin Thickness (See Onion Trial Information) 4 = Good 3.7 = Average

NOTE: Due to heavy infestations of smut and onion maggot in the spring, days to maturity and yield were affected by poor stand.

Legend: **Stand/Meter:** 33 bulbs/m = 10 bulbs/ft

WeightBulb (g): A bulb 51 mm (2") in diameter weighs 70 g
A bulb 57 mm (2 1/4") in diameter weighs 100 g
A bulb 64 mm (2 1/2") in diameter weighs 135 g

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ONION CULTIVAR ADAPTATION TRIAL - 1989

Cultivar	Source	Days to Maturity	Stand/Meter	Marketable Yield t/ha	Marketable Yield b/a	% No. 1 Smalls	% Non-Marketable	Weight/Bulb (g)	Firmness A	Firmness B	Uniformity Size	Uniformity Shape	Colour	Skin Thickness	Skinning	Neck Finish	Score
Keepsweet II	A&C	120	16	56	1004	1	5	156	4.7	3.7	3.3	3.7	3.3	4.3	4.7	4.0	3.78
CX 6023	A.Ch	123	21	61	1082	0	8	135	4.3	4.0	3.7	3.3	3.3	3.7	4.0	3.3	3.60
AGX 281	Agri	113	28	55	979	3	10	92	4.3	3.7	3.7	4.0	3.3	3.7	4.0	4.3	3.83
AX 1945	Aris	102	30	52	931	7	9	83	4.7	3.7	3.7	4.0	3.7	4.0	4.0	4.3	3.90
AX 1955	Aris	102	28	56	988	4	3	88	4.7	3.7	3.7	3.7	4.0	4.3	4.0	4.3	3.90
Taurus	Asg	109	20	44	787	2	2	98	4.7	3.7	4.0	4.0	3.7	3.7	3.7	4.3	3.90
XPH 3243	Asg	111	17	39	687	1	5	104	4.7	4.3	3.7	4.0	3.7	4.0	4.3	3.7	3.95
XPH 3282	Asg	109	19	34	611	3	9	88	5.0	3.7	4.0	3.7	4.0	4.0	4.0	4.3	3.95
Benchmark (3311)	Asg	111	23	59	1041	2	0	109	5.0	4.0	3.7	3.7	4.0	4.0	4.3	4.0	3.95
XPH 3407	Asg	120	21	37	650	5	3	78	4.7	4.0	3.7	4.0	4.0	4.3	4.3	3.7	3.95
XPH 3660	Asg	120	20	61	1084	0	0	132	4.7	3.7	4.0	3.7	3.7	4.3	4.7	4.0	3.97
Cannon	BEJO	97	19	27	477	3	13	72	4.7	3.0	4.0	4.0	3.7	3.3	3.0	4.7	3.73
Corona	BEJO	121	23	37	650	9	6	72	4.3	3.3	3.7	3.7	3.3	3.7	3.3	4.0	3.55
Patriot	BEJO	102	23	2	32	0	93	45	4.0	2.0	3.7	3.7	3.3	3.0	2.0	4.7	3.23
Spirit	BEJO	120	24	57	1016	0	2	106	4.7	3.7	3.7	4.3	3.7	4.3	4.3	3.7	3.90
Tundra	BEJO	120	19	31	550	14	0	72	4.7	4.0	3.7	4.0	3.7	4.7	4.3	4.0	3.95
Early Pak	Cro	106	17	43	771	1	0	111	4.7	3.7	4.0	3.7	3.7	4.0	3.7	4.0	3.80
Golden Treasure	Cro	120	24	43	757	14	1	78	4.3	3.7	3.3	3.3	3.7	5.7	4.3	3.7	3.67
Enterprize	E.J.	106	24	32	575	8	10	65	4.7	3.3	3.7	3.7	3.7	3.7	3.0	4.3	3.62
Trapps # 6	E.J.	116	16	34	602	2	2	95	4.3	4.0	3.7	3.7	3.7	4.3	4.3	4.0	3.90
Vanguard	E.J.	132	9	28	490	0	7	148	4.7	4.0	3.7	4.0	3.7	4.3	4.3	4.0	3.95
Class Pak	FM	130	10	35	628	1	9	161	4.3	4.0	3.7	3.7	3.7	4.0	4.3	4.0	3.90
Mohawk	FM	130	8	31	548	0	13	196	4.7	3.7	4.3	3.7	3.7	4.7	4.7	3.3	3.90
North Star	FM	120	18	33	579	5	2	79	4.7	4.0	3.7	3.7	4.0	4.3	4.3	4.0	3.95
Progress	HM	106	18	40	716	1	20	120	4.7	3.7	3.7	3.7	3.7	4.0	4.0	4.3	3.85

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ONION CULTIVAR ADAPTATION TRIAL - 1989-continued

Cultivar	Source	Days to Maturity	Stand/Meter	Marketable Yield t/ha	Marketable Yield b/a	% No. 1 Smalls	% Non-Marketable	Weight/Bulb (g)	Firmness A	Firmness B	Uniformity Size	Uniformity Shape	Colour	Skin Thickness	Skinning	Neck Finish	Score
HXP 2611	HM	116	22	64	1139	1	1	124	4.3	4.0	3.7	3.7	3.7	4.0	4.3	4.0	3.90
Fall Beauty	JHK	120	16	47	842	0	8	143	4.3	3.3	3.7	3.3	3.7	4.0	4.3	3.7	3.67
Fall Classic	JHK	120	14	30	534	8	0	94	4.3	3.7	3.3	3.7	3.7	3.7	4.0	4.3	3.78
Numanica	NK	133	16	45	797	1	18	151	4.3	3.3	3.3	3.7	3.3	4.7	4.7	3.3	3.60
Simcoe	PES	109	19	52	918	1	0	117	4.7	4.0	3.7	3.7	3.3	4.0	4.0	4.3	3.83
Goldita	RS	133	18	29	513	8	7	74	4.3	3.7	3.7	4.0	3.3	4.7	4.7	3.3	3.78
Lucrato	RS	120	12	17	299	8	13	67	4.3	3.3	3.3	4.0	3.0	3.7	3.3	3.7	3.43
Mercato	RS	125	33	49	878	8	0	65	4.7	3.3	4.0	4.3	3.0	4.0	4.0	4.0	3.77
Oporto	RS	133	24	29	513	15	10	57	4.3	3.7	3.7	4.3	3.3	4.0	4.3	3.7	3.83
Solidor	RS	126	21	31	557	5	9	72	4.3	3.3	3.7	3.7	3.0	3.7	3.7	3.7	3.52
Marathon	SS	125	14	37	653	4	0	111	4.3	3.7	3.7	3.7	3.3	4.3	4.3	3.7	3.73
Prevailer	Sieg	109	17	23	417	13	1	59	4.7	3.7	3.7	3.7	3.7	3.7	3.7	4.3	3.80
Allgood	Sto	137	23	49	872	5	12	103	4.0	3.7	3.3	3.7	3.3	4.3	4.0	2.0	3.33
Panman	Sto	137	25	45	801	1	37	125	4.0	3.7	3.0	3.7	3.3	4.0	3.7	2.7	3.35
Valiant	Sieg	118	18	35	619	9	1	86	4.3	3.7	3.3	3.3	3.7	4.0	3.7	4.0	3.62
Cuprum	Sun	118	20	32	564	16	0	68	4.7	3.7	3.7	4.0	3.7	3.7	4.0	4.3	3.90
Sunex 1492	Sun	122	25	38	668	15	0	66	4.7	4.0	4.0	3.7	4.0	4.3	4.3	3.7	3.95
Sunex 1497	Sun	120	26	38	673	13	3	65	4.7	3.7	3.7	4.0	3.7	4.0	4.3	4.0	3.90
T-355	Tak	120	16	25	447	13	1	68	4.7	3.7	3.7	3.7	3.3	4.3	4.0	4.3	3.78
6212	Tak	120	25	73	1305	1	6	136	4.7	3.7	3.7	4.3	4.3	4.0	3.3	4.3	3.93

.../ continued

ONION CULTIVAR ADAPTATION TRIAL - 1989 - continued

Cultivar	Source	Days to Meturity	Stand/Meter	Marketable Yield t/ha	Marketable Yield b/a	% No. 1 Smalls	% Non-Marketbale	Weight/Bulb (g)	Firmness A	Firmness B	Uniformity Size	Uniformity Shape	Colour	Skin Thickness	Skinning	Neck Finish	Score
6401	Tak	116	26	61	1086	0	7	109	4.3	3.3	4.0	3.7	3.7	3.7	4.0	4.7	3.90
Clipper	VDH	116	21	35	623	15	0	72	4.7	3.7	4.0	3.7	3.7	4.0	4.3	4.0	3.90
Django	VDH	116	20	36	644	3	0	79	4.3	3.3	4.0	4.0	3.7	4.0	4.3	4.0	3.88

5 = Most Desirable, except for Skin Thickness (See Onion Trial Information)- 4 = Good - 3.7 = Average

NOTE: Due to heavy infestations of smut and onion maggot in the spring, days to maturity and yield were affected by poor stand.

Legend: Stand/Meter: 33 bulbs/m = 10 bulbs/ft

Weight/Bulb (g): A bulb 51 mm (2") in diameter weighs 70g
A bulb 57 mm (2 1/4") in diameter weighs 100 g
A bulb 64 mm (2 1/2") indiameter weighs 135 g

The cultivar Solidor has a thick flat shape.

Cannon, Corona and Patriot were breaking dormancy at evaluation time

RED ONION CULTIVAR TRIAL - 1989

Cultivar	Source	Days to Maturity	Stand/Meter	Marketable Yield t/ha	Marketable Yield b/a	% Non-Marketable	Weight/Bulb (g)	Firmness A	Firmness B	Uniformity Size	Uniformity Shape	Colour External	Colour Internal	Skin Thickness	Skinning	Neck Finish	Score
MAIN TRIAL - 2 REPLICATIONS																	
Big Red	A&C	128	20	51	906	3	112	4.3	3.3	3.5	3.5	3.9	3.9	3.9	3.7	3.3	3.56
Benny's Red	HM	132	19	40	703	13	106	4.0	3.7	3.5	3.7	3.5	3.9	3.7	3.9	3.4	3.64
Red Baron	Sieg	127	18	37	659	3	91	4.3	3.7	3.7	3.5	3.5	3.5	3.7	3.7	3.7	3.61
Carmen	Sto	126	19	32	566	13	85	4.3	3.3	3.7	3.9	3.7	4.3	3.7	3.5	4.0	3.76
Tango	Sto	124	20	49	865	7	114	4.5	3.5	3.5	3.9	4.2	4.3	3.5	3.5	3.5	3.76
Red Rubin	Sto	137	22	47	840	21	115	3.7	3.5	3.5	3.4	3.7	3.3	3.3	3.3	2.7	3.32
Sunre 1488	Sun	129	19	65	1150	6	160	3.9	3.3	3.7	3.9	3.7	4.0	3.5	3.5	3.7	3.68

5 = Most Desirable, except for the Skin Thickness (See Onion Trials Information). 4 = Good 3.7 Average

NOTE: Due to heavy infestations of smut and onion maggot in the spring, days to maturity and yield were affected by poor stand.

Legend: Stand/Meter: 33 bulbs/m = 10 bulbs/ft
Weight/Bulb (g): A bulb 51 mm (2") in diameter weighs 70 g
A bulb 57 mm (2 1/4") in diameter weighs 100 g
A bulb 64 mm (2 1/2") in diameter weighs 135 g

LONG TERM AVERAGES OF ONION CULTIVARS

Cultivar	Source	# Years Tested	Marketable Yield t/ha	Marketable Yield b/a	Days to Maturity	Firmness * A	Firmness * B
Eskimo	Tak	6	58.9	1048	105	4.13	3.75
Norstar	Tak	6	64.7	1151	106	3.96	3.31
Columbia	FM	5	58.6	1043	108	4.30	3.83
Simcoe	Sun	8	48.6	865	109		4.24
Rocket	Asg	13	54.6	970	109		3.82
Early Pak	Cro	8.	52.5	935	110		4.08
Trapp # 6	E.J.	12	54.1	962	110		4.01
Tarmagon	Sto	5	67.2	1197	110	4.28	3.84
Aries	Asg	10	52.3	931	111	4.19	3.93
Taurus	Asg	12	54.0	960	111		3.79
Trapp # 8	E.J.	12	57.7	1026	112	4.40	4.19
Imp. Autumn Spice	Sto	8	45.8	815	112		3.78
Capable	Sun	5	59.2	1054	112	4.08	3.74
Bingo	Sto	2	65.8	1169	114	4.40	3.95
Guardian	HM	3	56.8	1010	114	4.12	3.90
Bronze Reserve	FM	4	48.5	863	115	3.98	3.78
Paragon	Sun	2	69.6	1236	116	4.36	4.10
Canada Maple	Sto	16	56.0	997	117		4.21
Autumn Keeper	JHK	8	53.7	955	117		4.09
Sweet Sandwich	PETO	7	69.0	1227	117	3.80	3.86
Suntan	Swy	2	62.1	1101	117	4.33	3.70
Sassy Brassy	FM	2	65.4	1166	117	4.03	3.42
Bronze Age	FM	6	60.8	1082	117		3.38
Spartan Sleeper	PES	4	61.4	1093	118		4.11
Sentinel	HM	12	58.4	1039	120		4.22
HXP 2621	HM	3	48.2	859	120		3.93
Cuprum	Sun	5	64.2	1143	120		3.92
Flame	Asg	2	71.0	1263	120	4.00	3.42
Northern Oak	Sto	8	61.0	1085	121		3.80
Gilbraltar	FM	2	59.7	1063	122		4.25
Copra	BEJO	5	64.9	1156	122	4.33	4.04
Spartan Banner 80	Agw	2	67.8	1207	125		3.78
Superior	A&C	3	60.6	1072	125		3.56
Spartan Banner	A&C	6	62.1	1106	126		3.77

* 5 = Most Desirable 4 = Good 3.7 = Average Listed in Order of Days to Maturity

See Onion Cultivar Write Up for Firmness A & B information.

ONION CULTIVAR STORAGE TRIAL - 1988-89

Cultivar	Source	% Weight Loss	% Rot	% Sprouts	% Soft	** % MKB.	* Firmness Sept. 23/88	* Firmness Aug. 08/89
Paragon	Sun	7	0	0	1	92 a	4.2	4.0
Bingo	Sto	8	0	0	1	91 a	4.1	4.0
Suntan	Swy	9	0	0	1	90 ab	3.8	3.7
Citadel (3370)	Asg	9	1	0	1	89 ab	3.9	3.6
Cuprum	Sun	9	1	0	2	88 ab	4.0	3.4
Hustler	HM	9	1	0	2	88 ab	3.9	3.6
Columbia	FM	9	0	1	3	87 ab	4.1	3.4
Exporter II	Sto	10	1	1	2	86 ab	3.9	3.7
Copra	Sieg	11	1	0	2	86 ab	3.9	3.3
Tarmagon	Sto	9	0	3	2	86 ab	4.1	3.1
Capable	Sun	9	0	0	5	86 ab	4.0	3.9
Bronze Reserve	FM	10	1	2	2	85 ab	4.0	3.8
Super Spice II	Sto	11	1	1	2	85 ab	3.9	3.6
HMX 2621	HM	13	1	0	1	85 ab	4.2	3.4
Advancer	HM	10	0	1	4	85 ab	4.0	2.7
Hi Score	E.J.	11	0	3	2	84 ab	4.0	3.6
Taurus	Asg	10	1	2	3	84 ab	3.7	3.2
Django	VDH	11	1	2	4	82 ab	3.7	3.0
Sweet Sandwich	PES	12	4	0	3	81 ab	3.4	3.1
Fortress (3330)	Asg	11	2	6	1	80 ab	3.9	3.8
Eskimo	Tak	12	0	4	4	80 ab	4.2	3.3
Flame (3272)	Asg	10	2	0	9	79 ab	3.7	3.1
Sassy Brassy	FM	11	2	0	10	77 ab	3.7	3.2
Class Pak	FM	11	5	1	7	76 b	3.7	3.3
Norstar	Tak	10	1	7	15	67 b	3.7	2.4
Average		10	1	1	4	84	3.9	3.4

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ONION CULTIVAR STORAGE TRIAL - 1988 - 89 - Continued

* 5 = Most Desirable, 4 = Good, 3.7 = Average

** Numbers in a column followed by the same letter are not significantly different at the level, Duncan's New Multiple Range Test.

Listed in order of % Marketable

On August 17, 1988, Royal MH 60 SG was applied at 6.25 kg/ha in 500 L water/ha. The bulbs were pulled on September 15 and the tops were removed September 26. The samples were placed in a forced air and temperature controlled storage at 28°C. The relative humidity was 40% and increased to 60% in 4 weeks. The temperature was gradually lowered until it reached 1°C by the end of December. The samples were moved to a refrigerated storage in March of 1989. There were 3 replications per cultivar. Evaluation took place August 9, 1989. Total storage period was 45 weeks.

LONG TERM AVERAGES OF ONION CULTIVAR STORAGE TRIALS

Cultivar	Source	# Years Tested	% Weight Loss in Storage	% Rot, Soft & Sprouts by Weight	% Marketable by Weight	Firmness * A	Firmness * C
Paragon	Sun	2	7.6	0.7	91.7	4.25	4.00
Bingo	Sto	2	8.0	0.7	91.3	4.20	3.95
Suntan	Swy	2	8.0	1.0	91.0	4.15	3.80
Hustler	HM	2	8.7	2.4	88.9	4.05	3.70
Copra	BEJO	4	8.5	3.1	88.4	4.17	4.13
Super Spice II	Sto	2	9.9	2.3	87.8	4.10	3.55
Simcoe	Sun	4	7.8	7.2	85.0		4.18
Cuprum	Sun	5	10.1	5.0	84.9	4.13	3.64
Tarmagon	Sto	3	8.6	7.9	83.5	4.23	3.60
Canada Maple	Sto	8	8.2	8.5	83.3		4.22
Taurus	Asg	9	7.3	9.8	82.9		3.64
Capable	Sun	3	8.8	8.3	82.9	4.00	3.60
Flame	Asg	3	10.2	7.6	82.2	3.90	3.30
Sweet Sandwich	PES	5	10.0	8.0	82.0	3.63	3.40
Exporter	Sto	3	8.7	9.2	82.1		3.63
Sassy Brassy	FM	2	10.5	7.5	82.0	3.95	3.40
Trapr # 8	E.J.	8	8.6	10.1	81.3		3.96
Columbia	FM	3	11.5	7.8	80.7	4.17	3.53
Sentinel	HM	8	9.9	9.8	80.3		4.17
Mucker	Sun	6	8.3	11.5	80.2		3.82
Bronze Reserve	FM	2	12.1	9.6	78.3	3.75	3.45
Autumn Pride	E.J.	3	8.0	14.7	77.3		3.33
Trapp # 6	E.J.	5	8.6	14.3	77.1		4.02
Autumn Keeper	Cro	5	9.6	15.4	75.0		3.92
Rocket	Asg	5	8.0	17.5	74.5		3.96
Tamarack	Sto	4	9.0	16.7	74.3		3.83
Eskimo	Tak	5	9.5	17.0	73.5	4.13	3.50
Superior	A&C	2	10.5	16.0	73.5	4.00	3.30
Autumn Splendor	Cro	7	8.7	19.1	72.2		3.90
Aries	Asg	6	8.2	20.5	71.3		3.52
HMX 2621	HM	2	16.8	13.4	69.8	4.05	3.65
Early Pak	Cro	5	9.6	24.2	66.2		3.72
Norstar	Tak	5	9.0	28.5	62.5	3.80	2.84

* 5 = Most Desirable 4 = Good 3.7 = Average

Listed in Order of % Marketable

Storage Period Usually 11 months

SPANISH ONION CULTIVAR STORAGE TRIAL - 1988-89

CULTIVAR	Source	% Weight Loss	% Rot	% Sprouts	% Soft	** % Mkb.	* Firmness Oct. 13/88	* Firmness July 24/89
Cima	Sun	3	2	0	0	95 a	4.0	4.0
Fiesta	Sto	4	0	0	1	95 a	4.0	3.5
Valiant	Sto	3	0	0	3	94 a	4.2	4.1
Brahma	Sun	3	0	0	6	91 a	3.9	3.6
Sweetheart	FM	4	2	0	4	90 ab	3.9	3.0
Maya	Asg	3	3	0	5	89 ab	3.7	3.1
Bullseye	FM	3	2	1	6	88 ab	3.9	3.6
Bullring	Sun	4	8	0	2	86 abc	4.3	4.3
Golden Cascade	Sun	3	2	0	10	85 abcd	4.0	3.7
Oro Grande	FM	3	5	0	9	83 abcd	3.9	3.6
Winner	Sun	4	4	0	10	82 abcd	3.9	2.2
Durango	Sun	4	0	0	16	80 abcd	3.4	2.9
Vega	Asg	4	5	0	18	73 abcde	3.9	3.0
Armada	Asg	5	3	0	19	73 abcde	3.6	3.2
Big Mac	Cro	3	2	0	22	73 abcde	3.4	2.7
Bravado	Sun	3	2	0	25	70 bcde	3.7	2.7
Ringmaker	Cro	5	10	0	23	62 cdef	3.7	3.4
Riverside Sweet	Sto	5	5	0	30	60 def	3.7	2.7
Sweet Amber	Cro	3	6	0	38	53 ef	3.6	2.7
Yula	Asg	5	6	21	23	45 f	3.8	2.6
Average		4	3	1	14	78	3.8	3.2

** Numbers in a column followed by the same letter are not significantly different at the 5% level, Duncan's New Multiple Range Test.

* 5 = Most Desirable, 4 = Good, 3.7 = Average

Listed in order of % Marketable

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SPANISH ONION CULTIVAR STORAGE TRIAL - 1988-89 - continued

On March 14, 1988, the onions were seeded in Speedling trays filled with Pro-Mix G. There were 4 seeds per cell (each cell was 3 cm X 3 cm) and these were thinned to one plant per cell when the onions were at the first true leaf stage. The plants were regularly clipped back to a height of 12 cm, to promote sturdy plant growth. Transplanting took place on May 20, 1988. There were three replications per cultivar. Spacing was 12 cm X 43 cm. After transplanting, 25 kg/ha of Lorsban 15 G was spread in a band over the row and covered with 1 cm soil. A drench treatment of Birlane 25WP was applied at a concentration of 1.25 kg/1000 L of water on June 1. Each plant received 170 ml of Birlane solution. This application of insecticide was timed to go on just prior to the peak of egg deposition of the first generation of the onion maggot fly. On Sept. 15, all cultivars were pulled, topped by hand and left in the field to dry. They were harvested and placed in a forced air and temperature controlled storage on Sept. 19. The temperature in the storage was 26^{o}C and the relative humidity varied from 30 to 60%.

The onions were evaluated on Oct. 12 and 13 after 3 1/2 weeks in storage. Sound bulbs were returned to the onion storage, where the temperature was gradually reduced to 1^{o}C by the end of December. The samples were moved to a refrigerated storage in March 1989. Evaluation took place on July 24, 1989.

Total storage period was 45 weeks.

ONTARIO REGIONAL POTATO CULTIVAR TRIAL - 1989

This trial was done in co-operation with Dr. R.H. Coffin (Research Scientist) of Agriculture Canada.

MANAGEMENT PROCEDURES

Fertilizer: 270 kg/ha 50-0-0 + 15 kg/ha Borax.

Planting: Four replications of 15 cultivars were planted on May 19. The tubers were planted 25 cm apart at a depth of 7 cm and covered with low hilling. Large tubers were cut in half. The rows were spaced 86 cm apart.

Weed Control: Pre-emergence: 1 application of 2.5 L/ha Gramoxone
1 application of 2.0 kg/ha Lorox

Insect & Disease Control:
3 foliar sprays of .14 L/ha Cymbush
3 foliar sprays of 3 L/ha Vydate
2 foliar sprays of .30 L/ha Decis
2 foliar sprays of 1.4 L/ha Thiodan
1 foliar spray of 2.2 kg/ha Imidan
1 foliar spray of .17 L/ha Ripcord
3 foliar sprays of 2.2 kg/ha Dithane
1 foliar spray of 3.2 L/ha Bravo
1 foliar spray of 2.5 kg/ha Ridomil

Minor Elements: 1 foliar spray of 3.0 kg/ha Epsom Salts
1 foliar spray of 3.0 kg/ha Tecmangam

Top Killing: September 25 with 4.5 L/ha Reglone.

Harvest: Harvest was done on October 12 and 13.

1 bushel = 25 kg (55 lbs)

EVALUATION

Evaluation took place on November 15 and 16.

Marketable Size: 57 mm to 89 mm (2 1/4" to 3 1/2").

ONTARIO REGIONAL POTATO CULTIVAR TRIAL - 1989

Cultivar	Marketable t/ha	Marketable bu/a	Marketable %	% Small	% Over & Culls	June 12 * Emeregence V	June 12 * Emeregence U	Comments
W 848	54.1	876	76	8	16	3.0	3.8	yellow skin, round
Norchip	48.7	790	75	23	2	4.1	4.7	
G 8160-3R	46.5	753	71	14	15	4.1	4.1	red skin, white flesh short dormancy, some brittle, skins ends
F 75040	44.6	723	77	15	8	3.7	2.8	short dormancy, burst skins
G 8160-6R	39.5	639	53	12	35	4.2	4.5	red skin, heavy tops, skins at harvest, slight sprouting
G 8160-11RY	38.3	621	71	11	18	3.3	2.8	pink skin, yellow flesh, slight sprouting, brittle
Viking	37.4	605	50	13	37	2.8	4.3	red skin, brittle, oversize rough skin
Chieftan	37.2	602	59	19	22	2.7	3.3	red skin
G 8118-6	31.6	513	56	17	27	3.6	2.5	yellow skin, round, brittle
Yukon Gold	31.4	508	69	15	16	3.3	3.9	round, smooth, pink eyes
FTB873-7	29.7	481	69	23	8	2.8	3.1	shape-flattened round, slight sprouting
FTB872-5	27.9	453	69	28	3	2.4	4.4	small, short dormancy
Shepody	27.8	451	58	12	30	3.3	3.5	oblong
G7953-3	26.2	424	53	19	28	4.1	4.1	brittle
Banana	Unmarketable							small, oblong, poor uniformity size and shape

* 5 = Most Desirable 4 = Good 3.7 = Average V = Vigour U = Uniformity